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An assessment of the impact of the FP7 ERA-NET scheme on organisations and research systems

NETWATCH - Platform on transnational R&D programme collaboration

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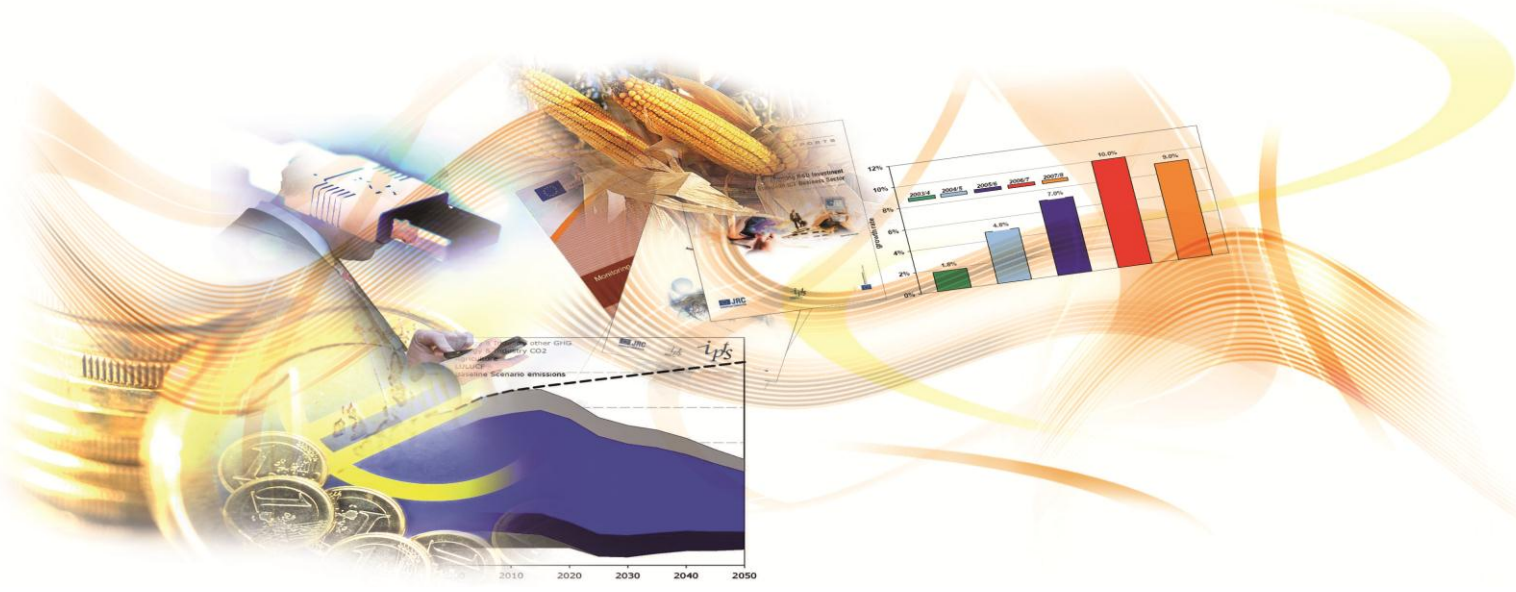

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Abstract

The NETWATCH online platform collects and presents information to support the analysis of transnational research programme cooperation. Its content centres on the participants and activities of ERA-NETs and ERA-NET Plus. Building on these data, this report sets out an assessment of the impact of the FP7 ERA-NET scheme on stakeholder organisations and on the research systems in which they operate.
In July 2012, the European Commission's ERA Communication gave renewed impetus to the realisation of ERA, targeting its completion in 2014. Transnational coordination of research at the programming level was identified as playing a prominent role in this, with ERA-NETs being a key instrument.
These developments highlight the need to understand better the impact of the ERA-NET scheme. NETWATCH has accumulated substantial information on transnational research programme collaboration, which provides a solid basis for this impact assessment, together with complementary data from various secondary sources and additional data collection by JRC-IPTS. The issues addressed by the current report are threefold:
-The direct impact of the ERA-NET scheme on the collaborative dimensions of national research programming practices, reflecting the extent to which the scheme is meeting its core objectives;
-The impact of the scheme on the behaviour of participating organisations and;
-The overall impact on the national and European research landscape, particularly the nature and level of transnational collaborative behaviour.

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Acknowledgments

This report has been produced within the context of NETWATCH, the European Commission's information platform on transnational R&D programme collaboration. NETWATCH is a long-term initiative developed by the European Commission's Joint Research Centre - Institute for Prospective Technological Studies (JRC-IPTS). The primary objective of NETWATCH is to offer a central information platform on European transnational R&D programme collaboration, focused initially on the ERA-NET scheme.

Executive Summary

The NETWATCH online platform collects and presents information to support the analysis of transnational research programme cooperation. Its content centres on the participants and activities of ERA-NETs and ERA-NET Plus. However, information is also collected on Article 185s,[1] Joint Programing Initiatives (JPIs)[2] and networks that continue but no longer receive EU support (known as self-sustaining networks). The information collected is used to map and monitor the transnational research programming landscape and to produce policy briefs on issues pertinent to the policy debate, which are also published on the platform.

Building on these data, this report sets out an assessment of the impact of the FP7 ERA-NET scheme on stakeholder organisations and on the research and innovation systems in which they operate.

Rationale

Designed to contribute to the realisation of the European Research Area (ERA), the ERA-NET scheme was launched under the Sixth Framework Programme (FP6) and has since continued, with various enhancements, under the Seventh Framework Programme (FP7) and subsequently Horizon 2020. There is now more than a decade of experience with the ERA-NET scheme.

Understanding the manifold impacts of the ERA-NET scheme is particularly important in light of its contribution within the evolving policy context. Under the Innovation Union flagship initiative, ERA-NETs are part of a suite of transnational cooperation schemes within a broader innovation spectrum that includes other research and innovation schemes. The ERA-NET scheme under Horizon 2020 integrates ERA-NET and ERA-NET Plus in the ERA-NET Co-Fund scheme. The role of ERA-NETs are also changing vis-à-vis the Joint Programming Initiatives (JPI), which are now gaining more maturity since the concept was launched in 2008.

In July 2012, the European Commission's ERA Communication gave renewed impetus to the realisation of ERA, targeting its completion in 2014. Transnational coordination of research at the programming level was identified as playing a prominent role in this, with ERA-NETs being a key instrument.

These developments highlight the need to understand better the impact of the ERA-NET scheme. NETWATCH has already accumulated substantial information on transnational research programme

[1] Implementing Article 185 TFEU in the Seventh Framework Programme implies that the participating EU Member States integrate their research efforts by defining and committing themselves to a joint research programme, in which the EU promotes the voluntary integration of scientific, managerial and financial aspects. The EU provides financial support to the joint implementation of the (parts of the) national research programmes involved, based on a joint programme and the setting-up of a dedicated implementation structure

[2] The joint programming concept was introduced by the European Commission in July 2008 to support implementation of the European Research Area. The objective of joint programming is to 'increase the value of relevant national and EU R&D funding by concerted and joint planning, implementation and evaluation of national research programmes'.

collaboration, which provides a solid basis for this impact assessment, together with complementary data from various secondary sources and additional data collection by JRC-IPTS.

Context and approach

Previous studies on the ERA-NET scheme, such as the evaluation and impact assessment of the FP6 ERANET scheme performed in 2009 by Ramboll-Matrix and the Report of the ERA-NET Expert Review Group in 2006, provide valuable inspiration. Both of these studies focussed on the ERA-NETs launched under FP6 (2002-2006). A shared overall conclusion of these studies was that the scheme had been successful in relation to its original objectives of fostering the cooperation and coordination of national or regional (to a lesser extent) research programmes.

The issues addressed by the current report are threefold:

(i) The direct impact of the ERA-NET scheme on the collaborative dimensions of national research programming practices, reflecting the extent to which the scheme is meeting its core objectives (exchange of information and good practices, definition and implementation of common strategic activities, and funding of joint transnational research);
(ii) The impact of the scheme on the behaviour of participating organisations and;
(iii) The overall impact on the national and European research landscape, particularly the nature and level of transnational collaborative behaviour.

In addressing these issues, NETWATCH data have been complemented by a survey targeting all FP7 ERA-NET participants, in-depth interviews with a sample of ERA-NET coordinators selected in collaboration with the NETWATCH Advisory Board, a joint calls database analysis, four case studies, and a comparative network analysis between FP6 and FP7 ERA-NETs.

Main findings

(i) Meeting the core objectives of the ERA-NET scheme

Learning from successful ERA-NET joint calls

In spite of the crisis, the FP7 period showed a significant increase in the total amounts dedicated to joint calls: €456m in 2013, compared to €236m in 2008 (Jekova and Niehoff, 2013) with the average public funding per call in constant increase since the beginning of the FP7 from €6.2m in 2007 to €11.4m in 2013.

There are wide variations, however, in the activities of networks. Case study analysis suggests that certain ERA-NETS have found an effective a way to manage large numbers of calls in a short period of time. Overall, the increase in the budgets of joint calls shows that the ERA-NET instrument is gradually becoming more successful in meeting its main objective of enhancing the coordination of transnational research programming. ERA-NET Cofund under Horizon 2020 aims to take this further by focusing the instrument on the implementation of joint calls. This is clearly needed in order to further increase critical mass (in 2011 the volume of joint calls only represented 0.37% of 2011 GBAORD).

From ad hoc to structural alignment?

The survey provides evidence that mutual learning and knowledge transfer are the two main drivers for organisations to participate in ERA-NETs. The development of action plans related to the establishment of a strategic research agenda seems to be the most important activity among participants and one of the main reasons to be involved in such activities. However, many barriers still exist towards cooperation in research programming, and case studies suggest that the focus is currently on practical alignment rather than systemic alignment. A feedback mechanism to develop *ad hoc* alignment into a more structural form can be useful to lower gradually the number of barriers in place (e.g. through feedback to ERAC[3]).

(ii) Impacts on participating organisations

Expected versus realised benefits: varying degrees of satisfaction

Different organisations clearly have different expectations with regard to their participation, as well as differing degrees of ex-post satisfaction. There is clearly no "one-size fits all" and the impact of ERA-NET participation may depend on many factors such as the individual organisation, the type of ERA-NET or the country. For participating organisations from the EU15, benefits with lower expectations seem to have materialised more than those with a high expectation e.g. the generation and funding of new types of research projects seems to have been in line with expectations (but was considered high priority for only one quarter of respondents), while expectations on 'supporting in transnational projects in an area requiring transnational cooperation' had high expectations which have not been met. Conversely, in new Member States, expectations regarding improving the quality of research projects have been met only partially.

Impacts on domestic programmes and further collaboration

ERA-NET participation appears to have more limited influence on research management processes, such as monitoring or evaluation procedures. This concurs with the above perception of more *ad hoc* alignment rather than structural changes. Considerable impact is evident, however, on domestic programmes. 32% of survey respondents report impact on establishing new programmes to align with the ERA-NET, while 37% report larger programme budgets for the ERA-NET theme as a result of their participation. In addition, in many cases participation in ERA-NETs appears to have led to participation in other forms of transnational research programming (ranging from other ERA-NETs, to JPIs and bi/trilateral cooperation).

(iii) The overall impact on the national and European research landscape

Structuring the transnational dimension of ERA: coordination increases over time

[3] European Research Area and Innovation Committee (ERAC). The Committee is a strategic policy advisory committee, the principal mission of which is to provide timely strategic input to the Council, the Commission and Member States on research and innovation issues that are relevant to the development of the ERA.

Network analysis shows that more organisations are participating in FP7 and they appear more collaborative because they connect more to other organisations. These observations regarding structural changes in networks between FP6 and FP7 indicate an increase in the coordination of European research over the period with some variation between the research fields.

In many cases, consortia build on pre-existing cooperation and the FP7 ERA-NETs were an opportunity to broaden the existing network. Exploring trajectories of continuation since the launch of the ERA-NET scheme in 2002 reveals a high degree of continuity among different research collaboration initiatives in Europe, with two third of all actions initially funded under FP6 experiencing some form of continuation. Among the 62 ERA-NETs funded under FP7, 37 are a direct continuation of an FP6 ERA-NET.

High priority for knowledge circulation, global cooperation and promoting excellence.
ERA-NET activities sometimes appear to go far beyond the core objectives for which the instrument was developed. This may indicate that it is difficult to separate the transnational research programming priority within ERA independent from the other ERA priorities. Managing and programming research beyond borders also requires researchers to be mobile in order to conduct the research, it requires availability of infrastructures, and knowledge transfer for the research results to be used. Both the case study analysis and the quantitative findings of the survey indicate the importance of these ERA priorities for ERA-NETs.

Low priority for gender issues and inclusion.
In contrast, the low interest in gender equality and especially inclusion (one of the three main strategic priorities in the Europe2020 Agenda on smart, sustainable and inclusive growth) may reflect the low importance this topic has in the core objectives of ERA-NETs. In neither ERA-NET Cofund nor JPIs are these topics high on the agenda. If the aim of the Public-to-Public partnerships (P2P) is to build critical mass in public funding, these P2Ps may play an important future role in completing the ERA, in realising all ERA priorities and in supporting the objectives of Europe 2020.

Impact on other ERA priorities: learning opportunities between ERA-NETs and JPIs
Under Horizon 2020 the scheme has adopted a clearer focus on joint calls. In this context it will be interesting to see how the wide set of related activities that go beyond joint calls can be continued. One option may be intensifying the existing relations between ERA-NETs and JPIs. The foreseen integration of ERA-LEARN and JPIs to Co-Work in one future learning initiative can be a step in this direction. It could be interesting if such an initiative covers issues related to the different ERA priorities, as well as to topics related to the wider innovation chain (such as standardisation and the adaptation of regulatory frameworks).

Involvement of private sector in ERA-NETs
Attempts have been made under the ERA-NET scheme to better involve business and to support SMEs. However, these have had a divergent degree of success (70% of respondents report openness of their programmes to industry, but in 70% of all ERA-NETs, participation of industry is less than 20%). This topic has to date also received less attention from JPIs. In the cases were P2Ps are aiming to address societal challenges and increase competitiveness in the EU, this issue may be an important area to be addressed.

1. INTRODUCTION AND METHODOLOGICAL APPROACH

1.1. Goals and Rationale

The work presented in this report builds on the previous work related to the impact of the ERA-NET scheme. This has included *inter alia* exploration of the methodological options for the assessment of the impact of the ERA-NET scheme[4], analysis of transnational programme cooperation, and the use and impact of dedicated instruments, notably the ERA-NET scheme. In particular, this report centres on the following questions:

- What are the main outcomes of FP7 ERA-NETS?
- What is the impact of the ERA-NET scheme on participating organisations?
- What is the impact of the ERA-NET scheme on the overall national research systems and the ERA?

Previous studies on the ERA-NET scheme, such as the evaluation and impact assessment of the FP6 ERA-NET scheme performed in 2009 by Ramboll-Matrix and the Report of the ERA-NET Expert Review Group in 2006, provide valuable inspiration. Both of these studies focussed on the ERA-NETs launched under FP6 (2002-2006). A shared overall conclusion of these studies was that the scheme had been successful in relation to its original objectives of fostering the cooperation and coordination of national or regional (to a lesser extent) research programmes. There is over a decade of experience with the ERA-NET scheme and it is an appropriate time to reconsider questions related to the impact of the scheme throughout FP6 and FP7.

An important element running through these assessments is the degree to which the ERA-NETs launched align with, and are consistent with, the original objectives of the scheme. The current framework for the assessment has therefore been devised on this basis. The over-arching objective of the scheme is its contribution to the realisation of the ERA: the reduction of fragmentation and increased coordination, to have a single more efficient system or space where there is no useless duplication of effort of both policy initiatives and research activities. However, as national organisations are the principal actors in ERA-NETs, the strategies of the Member States towards ERA-NET participation should also be considered.

After describing the scope of the impact assessment analysis and the data sources, this report sets out the broad methodological approach, including the main research questions used (Section 1.3). Section 2 presents the findings in response to the assessment questions at organisation level (section 2.1), and at national research systems level and European Research Area level (section 2.2). The report concludes (section 3) with a review of its overall findings.

1.2. The context

The ERA-NET scheme started in 2002 under the Sixth Framework Programme (FP6) and has since continued into the Seventh Framework Programme (FP7) and, more recently, into Horizon 2020 (H2020). After more than a decade of experience with ERA-NETs, understanding the impact of the scheme is particularly important in light of its contribution within the evolving policy context. Under the Innovation Union flagship initiative, the ERA-NET scheme is one of a suite of instruments facilitating transnational cooperation in research and innovation. Under Horizon 2020, the ERA-NET

[4] http://publications.jrc.ec.europa.eu/repository/handle/111111111/28718

scheme integrates the FP7 ERA-NET and ERA-NET Plus[5] schemes; furthermore, it complements the activities of Joint Programming Initiatives[6] (JPI).

In July 2012, the European Commission (EC) published a Communication giving renewed impetus to the European Research Area, setting out five priorities and concrete actions to meet the aim stated in Innovation Union communication in 2010 of completing the ERA by 2014. The second of these priorities is the coordination of the national policies of EU Member States in areas chosen beforehand, part of the intended role of ERA-NETs.

Under FP7, 77 ERA-NETs were selected for funding. These have involved over 700 organisations from 54 countries (28 Member States, 8 associated countries and 18 'Third' Countries[7]). 32 FP7 ERA-NET actions are direct continuations of FP6 contracts. A total of 51 ERA-NETs have started under FP7 on topics in addition to those that were covered under FP6. This reflects the recommendation by the expert review group in 2006 to reduce the 'bottom-up' approach followed in FP6 and to "encourage a more strategic 'top-down' approach in order to ensure a primary focus on areas of strategic importance".

Of the 77 FP7 ERA-NETs, 57 are thematic-oriented, addressing narrow research domains decided ex-ante, as specified in the FP7 thematic work programmes. The two broad themes: first, nanotechnologies and materials production and second, food, agriculture and biotechnologies, are both covered by 12 ERA-NETs. Transport and health are each covered by four ERA-NETs. The other 20 horizontal ERA-NETs cover topics such as the coordination of national policies supporting SMEs or research infrastructures, the coordination of regional policies, and the coordination of national policies targeting third countries.

1.3. Methodological approach and research questions

1.3.1. Sources of information and investigation tools

This impact assessment study covers the 77 ERA-NETs funded by the seventh Framework programme between 2007 and 2013. Other instruments considered, such as ERA-NETs Plus and JPIs, are only done so to take into account the overall coherence of the ERA-NET scheme.

The methodology uses the following combination of several tried and tested data collection strategies and analytical techniques to produce a mixture of quantitative and qualitative data:

- An online survey targeting ERA-NET participants[8] aimed at assessing the impact of ERA-NETs from the perspective of participant organisations. The survey covered the impact on national research policy, on research programmes, on the organisational practices and procedures, on the knowledge of, and access to, different national research systems and

[5] ERA-NET Plus actions provide, in a limited number of cases with high European added value, additional EU financial support to facilitate joint calls for proposals between national and/or regional programmes.
[6] Joint programming initiatives (JPI) are structured and strategic processes whereby Member States agree, on a voluntary basis and in a partnership approach, on common visions and Strategic Research Agendas (SRA) to address major societal challenges.
[7] 'Third country' means a state that is not a Member or associated State of the European Union. Third countries are also welcome partners. However, they are not all automatically eligible for funding. Following the EU's international cooperation for research and innovation strategy, Third countries have been divided in three categories: Enlargement or Neighbourhood countries and developing countries which are eligible and Industrialised countries and emerging economies which are not automatically eligible.
[8] The survey has been launched on 08/10/13 and closed 23/10/13 targeting the organisations (coordinators and partners) involved in FP7 ERA-net. 749 invitations have been sent, the survey received a total of 266 replies from organisations involved (35,5% participation rate).

communities and on the involvement of the private sector. The questionnaire also collected information on the barriers and problems perceived by organisations in exploiting their ERA-NET participation, as well as participants' views on the future, particularly with regard to Horizon 2020.

- Semi-structured interviews with selected ERA-NET coordinators covered, in further detail, the impact of participation in an ERA-NET on national programmes, of normal practice in their organisations and their views on the future of their ERA-NET.
- Social network analysis provided structural parameters and graphs to measure changes and modifications that occurred in networks between FP6 and FP7. FP6 and FP7 ERA-NETs have been distributed among 12 research fields in order to produce comparable network analyses for each of them.
- Comparison between the final research beneficiaries of ERA-NET Joint calls and of FP7. The joint calls projects database of four ERA-NETs[9] have been analysed in order to compare the structure of participation of collaborative projects of ERA-NETs and FP7 (in corresponding research fields).
- Various investigations performed in the context of complementary NETWATCH activities such as the production of:
    - Policy briefs[10]
    - Mapping and monitoring reports.[11]

1.3.2. Assessment issues

The core research issues, as well as the approach, for the impact assessment builds on the findings of the first NETWATCH Impact Assessment Report and the Matrix-Rambol FP6 ERA-NET Impact Assessment. This section identifies the key assessment questions and the available sources of relevant information to address them.

The approach also takes inspiration from the Barré et al (2012) paper on "measuring the integration and coordination dynamics of the ERA" and the proposed definition of three functions. Each of these functions can be associated with specific sets of actors, as follows:

1. Orientation function (government, policy makers);
2. Programming and funding function (research councils or equivalent, intermediary institution); or
3. Research performance function (individual scientists or research organisations).

The third level, targeting the research performance function (the joint calls beneficiaries), is covered here by a comparative database analysis of organisations funded by joint calls and by the survey targeting ERA-NET participants.

The following research questions guided the evaluation analysis. They are generic and gather all the questions addressed by the specific investigation tools used for the reports: ERA-NET participants survey, interviews, joint calls database analysis and social network analysis of ERA-NET consortia.

[9] The selection of ERA-NETs has been done in order to represent the best as possible the variety of ERA-NETs according to the themes and the availability of joint calls databases. The sample of four ERA-NETs chosen is represented by Woodwisdom, Euronanomed, Bonus and Crue

[10] http://netwatch.jrc.ec.europa.eu/strategic-analysis/policy-briefs

[11] http://netwatch.jrc.ec.europa.eu/strategic-analysis/mapping-and-monitoring

i. Direct Impact on participating organisations

- Q1: What are the external factors helping or hindering organisations to participate in an ERA-NET?
- Q2: What are the outputs and outcomes of the main ERA-NET activities?
- Q3: What are the expected benefits and the benefits realised with regard to organisation participation in the ERA-NET?
- Q4: What are the impacts of ERA-NETs on organisation management practices and procedures?
- Q5: What was the impact of the current economic crisis on ERA-NET activities?
-

ii. Overall impact on national and European research landscape

- Q6: What is the impact of the preparation and the launching of joint calls on participating organisations?
- Q7: Are ERA-NET joint calls used as a first step to other transnational research activities?
- Q8: Do ERA-NET joint calls involve the private sector?
- Q9: Does ERA-NET participation influence national or regional programme(s)?
- Q10: Do ERA-NETs have an impact on organisations' collaboration activities?
- Q11: Do ERA-NETs trigger transnational activities outside the scheme?
- Q12: What is the impact of ERA-NETs beyond the first objectives of the scheme?

2. FINDINGS IN RESPONSE TO THE EVALUATION QUESTIONS

2.1. Impact on participating organisations

2.1.1. Main drivers and barriers of organisation participation in an ERA-NET

Q1: What are the external factors helping or hindering organisations to participate in an ERA-NET?

A variety of factors can encourage organisations to participate. Two primary reasons that underpin participation are the increase in strategic R&D programming and the emergence of new types of R&D programmes due to the increase of project based funding as opposed to block grants. These are general trends in Europe as it has been shown in the recent ERA communication synthesis report[12] .

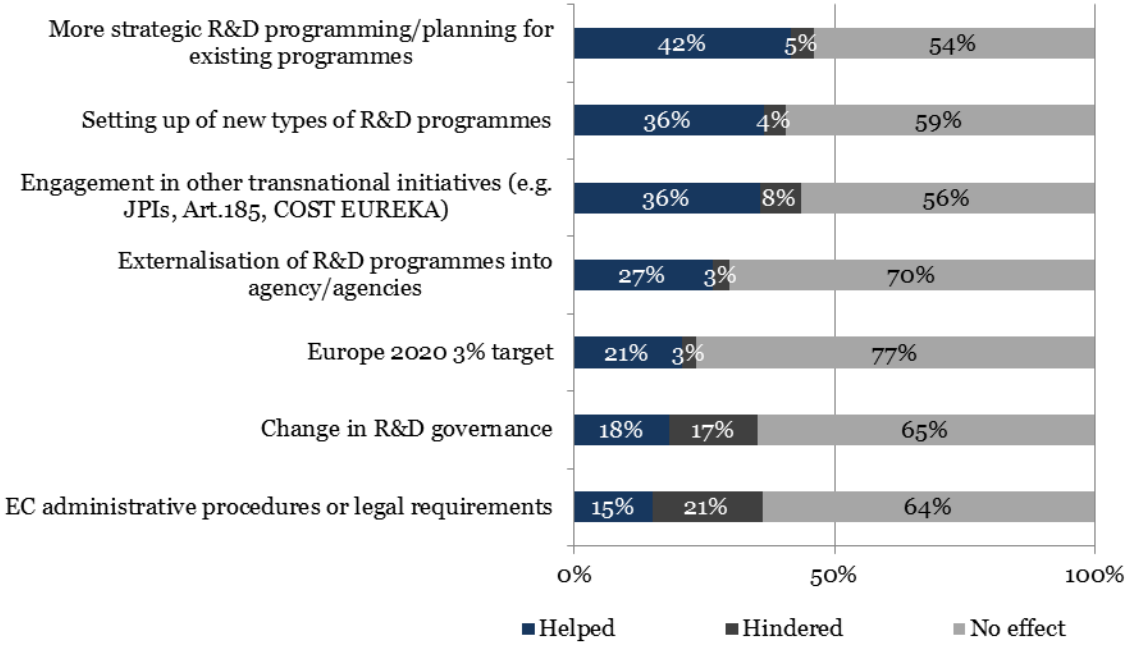
Engagement in other types of transnational initiatives plays a significant role: the more an organisation is involved in transnational activities, the more likely it is to participate in ERA-NETs. This approach based on involvement in international collaboration linking to the outside world is becoming an increasing priority in Member States. Another important factor for some countries to participate in ERA-NETs is as a tool to raise the scientific level of national programmes to the European level.

Thematic ERA-NETs, targeting specific research domains also increase the visibility of thematic domains at the European level when, for instance, research domains are tight (environment and health for instance) and research communities are too small with insufficient critical mass to appear at national level, but the issues targeted by research programmes are of European interest. This makes public intervention at European level highly relevant.

On the other hand, changes in R&D governance at the national level occurring in the current climate of the economic crisis together with budget constraints appear as major barriers to active participation in an ERA-NET. EC administrative procedures and the lack of flexibility of the ERA-NET scheme can also affect motivation and the possibilities to participate in ERA-NETs.

[12] Mathieu Doussineau & al, ERA Communication Synthesis Report, European Commission JRC-IPTS, 2013

Figure 1. Have any of the following external factors helped or hindered your organisation's participation in this ERA-NET? (Number of respondents: from 154 to 207)



Source: ERA-NET participant survey - October 2013-JRC-IPTS

2.1.2. Direct and indirect benefits for participating organisations

Q2. What are the outputs and outcomes of the main ERA-NET activities?

FP7 ERA-NETs are designed according to the objectives and expectations listed in Annex 4 of the FP7 "Cooperation" Work Programme[13] and related documents[14].

Activities supported under ERA-NETs follow a process in which coordination gradually deepens, depending on the degree of maturity of the network. ERA-NET actions should follow a four-step approach covering the following activities:

1. Systematic exchange of information and good practices on existing programmes
2. Definition and preparation of common strategic activities
3. Implementation of joint activities between national or regional programmes
4. Funding of joint transnational research

According to the EC guidelines, "ERA-NET actions should be ambitious and result in concrete progress towards the opening up of, or cooperation between, the participating research programmes. The cooperation should be sustainable beyond the duration of the ERA-NET action itself".

Analyses show that cooperation at the European level is increasingly natural behaviour for organisations, at least for the three first steps of the ERA-NET scheme (exchange of information and good practices on existing programmes, definition and preparation of common strategic activities and implementation of joint activities). ERA-NETs are involving the main European

[13] Work Programme 2013, Cooperation, Annexes 1-5. Available at: http://ec.europa.eu/research/participants/portal/download?docId=32919.

[14] Provision for the preparation of ERA-NET actions and their practical implementation. An issue paper serving as background document, DG RTD B1, 30 June 2010

stakeholders, which are also involved in other European (or international) networks (i.e. European Environment agency, International Energy Agency etc.).

The periodic NETWATCH mapping and monitoring activity[15] shows that the key strategic objectives of the active EU supported networks (ERA-NETs, ERA-NET Plus actions and Art. 185s) focus on the design and establishment of joint calls and mutual learning. This can be a reflection of a greater emphasis on the short-term outcomes since the calls can create benefits only within a limited period. On the other hand, the activities that may require more effort and thus need a relatively longer time to achieve concrete benefits (e.g. designing and establishing R&D programmes) receive less attention. Similarly, the survey has shown that the joint activities in which organisations are involved are short-term beneficiary activities, e.g. common strategic issues and preparing joint activities, establishing a common proposal evaluation scheme, developing a strategic research agenda and joint monitoring.

Joint research strategies and action plans

According to the survey results, almost all organisations (88%) involved in an ERA-NET have participated in the development of an action plan for common strategic issues and for preparing joint activities. The development of action plans related to the establishment of a strategic research agenda are the most common shared activities among participants.

Monitoring and evaluation procedures

Mutual learning and information exchange on monitoring and evaluation procedures are among the most popular activities. The creation of pools of European expertise on specific fields to evaluate joint call proposals is an important impact of ERA-NETs. The same pool of international experts is also used at the national level contributing to the implementation of the core principles of international peer review in the country, as defined in the 2012 EC communication. The mix of experts allowed by the ERA-NET reinforces the multidisciplinarity with the addition of new criteria to evaluate projects.

Common funding rules for transnational projects

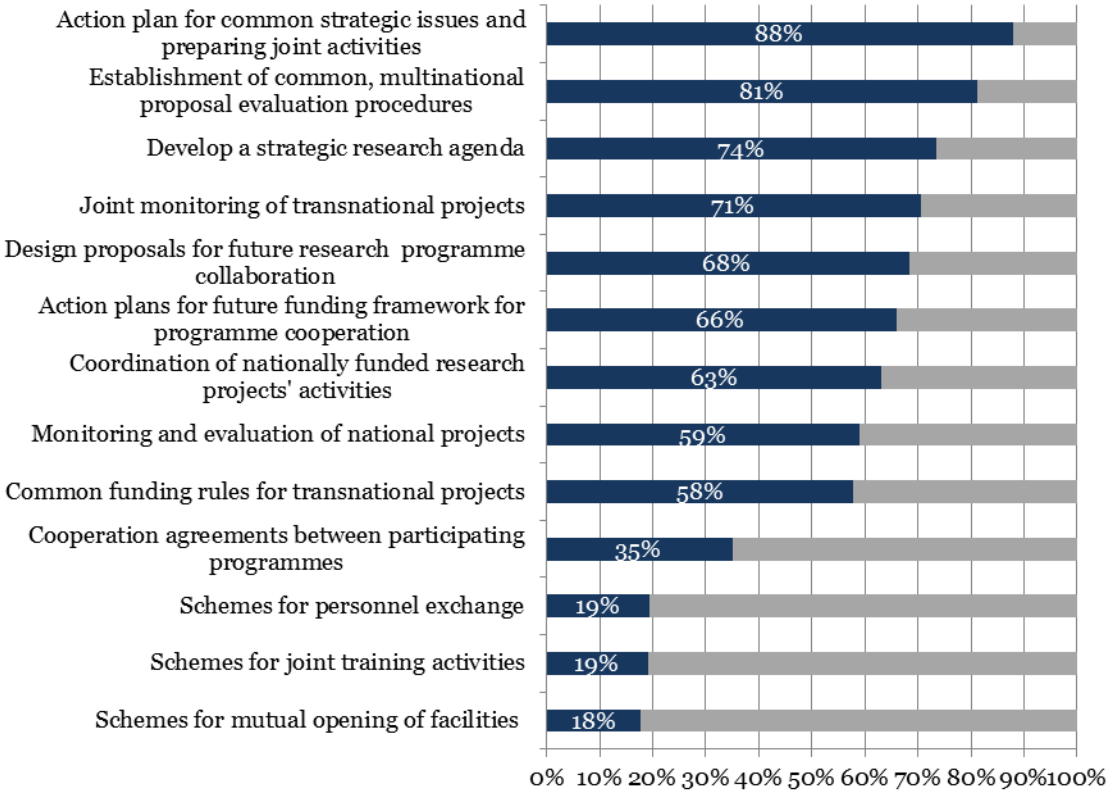
The funding of joint transnational research through the establishment of common funding rules is of particular importance, since the launch of joint calls is obligatory under the FP7 ERA-NET rules. However, while this condition is valid for the ERA-NET as a whole, it is not the case at the level of all participant organisations. Many organisations involved in ERA-NETs, particularly programme owners, did not participate in joint calls. Specific questions related to joint calls are covered in a dedicated section below.

Complementary Activities

Specific activities related to training, personnel exchange and mutual opening of facilities are less popular among organisations. These activities do not represent the core of the ERA-NET; they can be covered by the organisations but not specifically by the project itself. Schemes (for exchange, training or research facilities) may also already be in place at a broader level than the ERA-NET.

[15] See Nida Kamil Özbolat, Mark Boden (2013), NETWATCH Mapping and Monitoring: Fifth Exercise

Figure 2. In which of the following joint activities did your FP7 ERA-NET undertake and did your organisation participate? (Number of respondents: from 214 to 250)



Source: ERA-NET participant survey - October 2013-JRC-IPTS

Q3 What are the expected benefits and the benefits realised with regard to organisation participation in the ERA-NET?

Representatives of organisations participating in ERA-NETs were asked to assess the degree of importance of their expectations and the realisation (outcome) of these expectations.

Figure 3 ranks the items according to the importance of organisations' expectations. It also gives an overview of what satisfies organisations in terms of their participation in ERA-NETs. The resulting difference between the degrees of expectation and satisfaction gives information about the degree of unrealised expectations, or in other words, the degree of disappointment.

In most cases, the higher the degree of expectation, the higher is the degree of realisation. The difference between these two levels is an interesting source of information. For all objectives, the degree of realisation is at a lower degree to that of expectations.

Different expectation between New Member States and EU15[16]

Significant differences exist between New Member (NMS) States and EU15. The average level of expectation for New Member States is generally higher than in the EU15, the difference between the two groups is even higher regarding realisations. A major difference between the two groups is the importance given by NMS to higher quality projects funded at national level through joint calls or programmes created by a participation in an ERA-NET.

Knowledge transfer and opening up to transnational cooperation as the main expectations and realisations

EC financial support seems to be the most important component of the ERA-NET scheme for both EU15 and New member States. Knowledge transfer between organisations is indicated as the second component creating both the most expectations and satisfaction when realised. This is followed by the opening up to transnational cooperation of national programmes in existing or new research areas. The opening up of purely national programmes to transnational cooperation is one of the most important and ambitious components of an ERA-NET and has created important expectations which have been satisfied in 25% of the responses for EU15 countries but in 49% of those for NMS.

Creation of pools of international expertise on specific topics

Evaluation and monitoring is an aspect of knowledge transfer between organisations. Complementing this transfer, ERA-NETs allow the creation of pools of European experts in specific fields. This can be considered as an example of a long lasting impact of ERA-NETs. The pools of international experts gathered to evaluate joint calls projects are then used to evaluate research projects funded at national level. This reinforces multidisciplinarity with the addition of new criteria to evaluate projects. Moreover, the members of such pools of experts are also researchers themselves and may generate future transnational projects and generate innovation. In the specific case of evaluation, ERA-NETs act as a meeting point where research communities can meet and generate external benefits.

Joint calls as a stepping-stone to larger international projects

[16] European Countries belonging to the EU before May 2004

The role of ERA-NET joint calls as a first step for researchers preparing for transnational cooperation under the framework programme seems not to be a widely satisfied expectation. The reasons for this may be various. For example, researchers applying for joint calls may already participate in larger transnational programmes. Alternatively, researchers remain active mainly at national level after participating in a joint call. According to analysis of the participation in joint calls launched by four ERA-NETs, it appears that 60% of beneficiaries of those joint calls also participate in the FP7. Of course, this share varies according to participation typology (see section 2.2.3). With research communities that are less familiar with European programmes, ERA-NET joint calls are perceived by researchers as easier: projects are usually smaller, shorter with more simple mechanisms and entail less administrative burden. This is particularly the case for SMEs (87% of universities participating in joint calls are also involved in the FP7).

Figure 3 What were/are the expected benefits were/are the benefits realised with regard to participation in the ERA-NET? (UE15 responses)

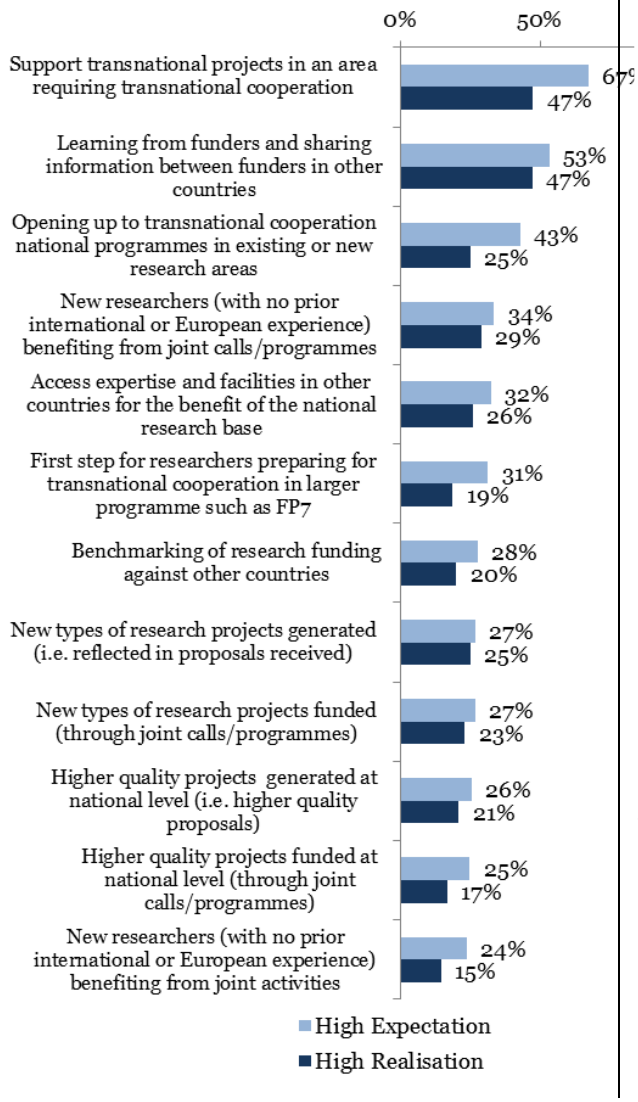


Figure 4 What were/are the expected benefits were/are the benefits realised with regard to participation in the ERA-NET? (New member States responses)

Source: ERA-NET participant survey - October 2013-JRC-IPTS

2.1.3. Impact of ERA-NET on the internal procedures of participating organisations

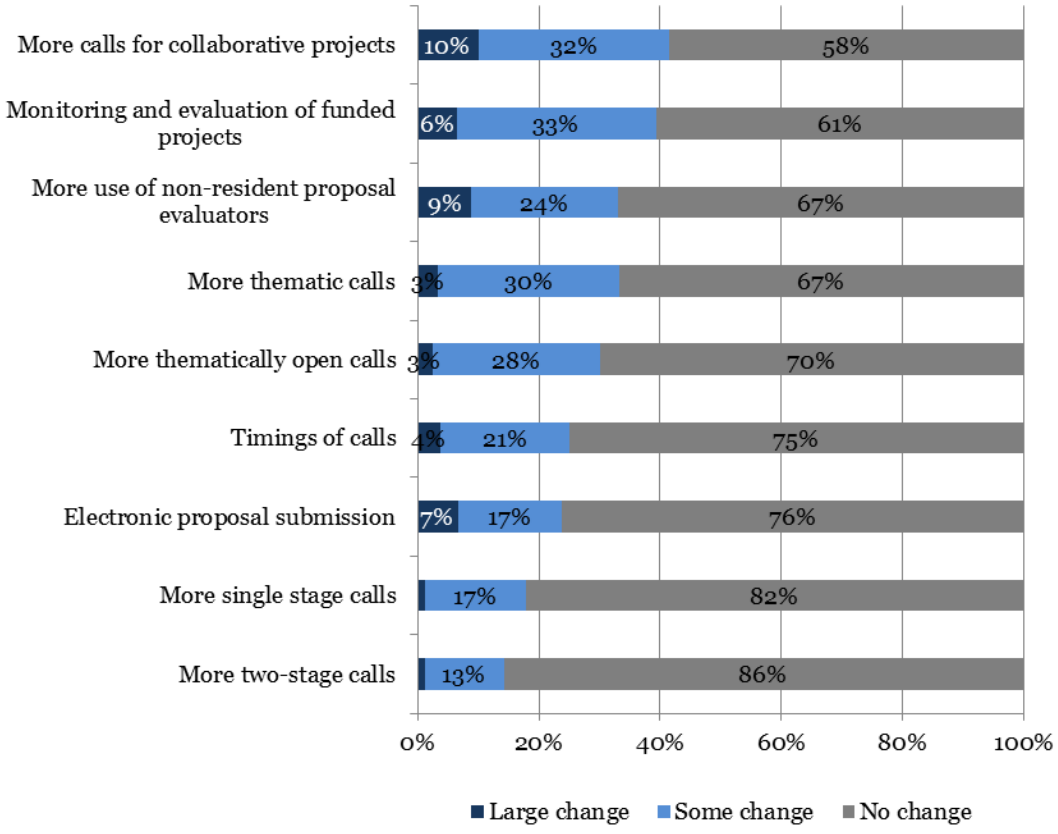
Q4: What is the impact of a participation on organisation management practices and procedures ?

ERA-NET implementation may bring about permanent (or long lasting) changes (outside the ERA-NET itself) within the participating organisations. According to the survey responses, this occurs for a relatively small number of organisations. ERA-NET participation seems to have little influence on national processes.

The long-lasting influences are most important for:

- The increase of collaborative research in national programmes with more calls for collaborative projects (behavioural change);
- An improvement of monitoring and evaluation of projects funded at national level because the ERA-NET allows organisations to follow and monitor the procedures of other European countries (knowledge transfer);
- The increased adoption of international principles of peer review.

Figure 5 Has your organisation changed any of the following research programme management practices because of its participation in this ERA-NET?



Source: ERA-NET participant survey - October 2013-JRC-IPTS

As the management practices of research programmes seem not to have changed drastically, ERA-NETs can be seen to provide adequate flexibility to accommodate the differing administrative structures of organisations enabling them to become involved in research programme

collaboration. This assertion may be strengthened by the fact that participation patterns of ERA-NETs demonstrate different characteristics in terms of the numbers of organisations involved. While some countries have a greater division of responsibilities between national structures, other countries may have overarching structures responsible for multiple areas. This variable geometry and flexibility of ERA-NETs are quite commonly observed phenomena[17].

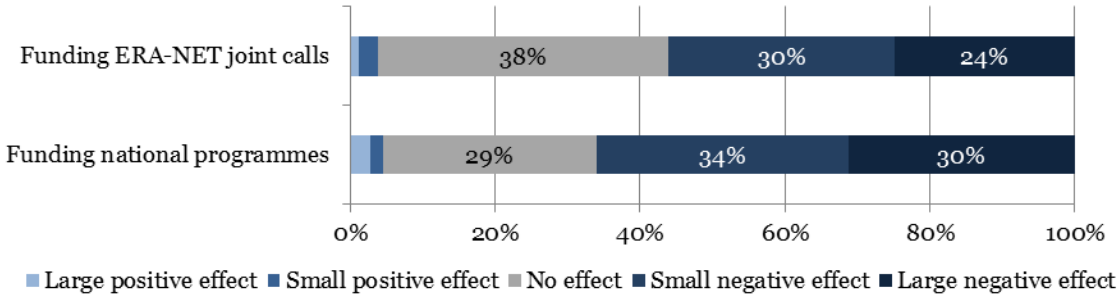
2.1.4. The impact of the economic crisis on ERA nets participants

The current economic crisis is affecting first the national programmes and then the joint calls. For a majority of participants, the current economic crisis has an impact on the level of funding of joint calls (54%) and of national programmes (64%).
The economic crisis is affecting ERA-NET at various levels:

- At joint call level, the economic crisis has influenced several ERA-NET partners in the level of funding and withdrawing from joint calls.
- At consortium level, national budget cuts push some countries to reorganise their systems with lead to the suppression of the public organisation involved in the ERA-NET. For instance, Belgium stopped the programme dedicated to the theme of Environment, health, the agency in charge of the topic disappeared, and the thematic area is dipersed among other organisations.

A lasting consequence of economic crisis could be lower participation in Horizon2020 ERA-NETs.

Figure 6 What effect has the economic crisis had on your national funding and the ERA-NET activities?



Source: ERA-NET participant survey - October 2013-JRC-IPTS

More than 125 joint calls have been launched (or are planned to be launched) for the period from 2013 to 2015 while the overall number of calls implemented between 2004 and 2012 was 278. In addition to this increase, national budgets for joint calls, including ERA-NETs, ERA-NET Plus actions and JPIs, have been growing steadily since 2004, and reached reaching €456 million in 2013 (see Figure 7).

Furthermore, joint calls with a total volume close to €845 million have already been planned for the period 2013-2015. These numbers show that overall volume of joint calls has not shrunk after the crisis. Rather the contrary, it has enlarged with 35-40 calls per year. It should be noted that more than 83% of total public funding committed to joint calls in 2012 was generated by FP6/7 funded ERA-NETs. Even after the economic crisis, ERA-NETs have continued launching calls and more than 90% of FP6/7 funded ERA-NETs, in general, have succeeded in launching joint calls.

[17] see http://netwatch.jrc.ec.europa.eu/strategic-analysis/mapping-and-monitoring

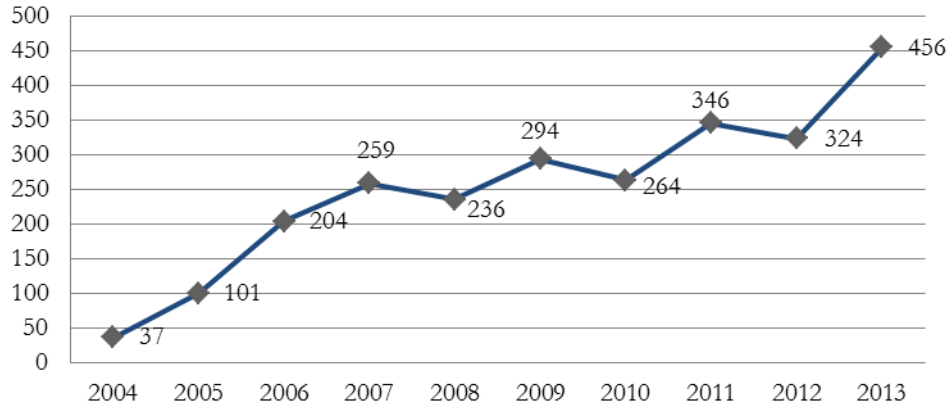
2.2. Overall impact on national and European research landscape

2.2.1. Impact on participants in preparing and launching joint calls

Q6: What is the impact of the preparation and the launching of joint calls on participating organisations (funding mode, regions' involvement etc.)?

Despite economic difficulties, the total public budget of joint calls, which includes European Commission contributions to ERA-NETs, ERA-NET Plus actions, JPIs and national contribution to ERA-NET Plus calls, has generally been increasing since 2004 (see figure 7 below). The number of joint calls launched per year and the average public contribution to joint calls have both followed a fluctuating course, underpinned by a longer term trend towards growth.

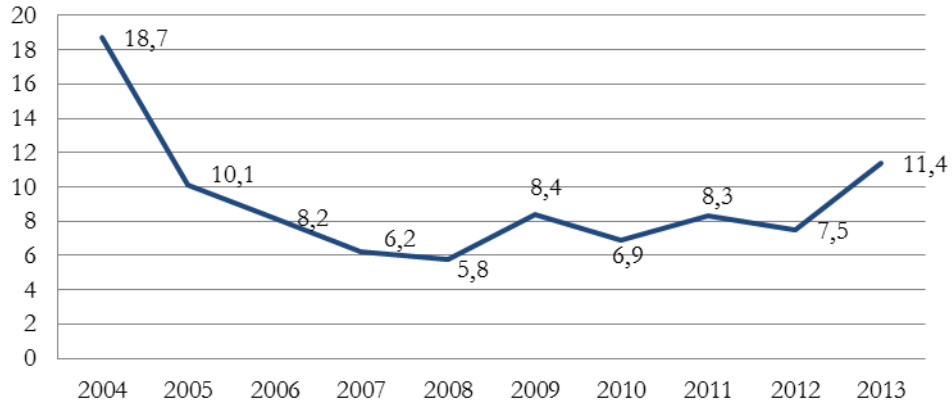
Figure 7 Total public budget for joint calls (€million)



** Public budget involves the FP funding to ERA-NETs, ERA-NET Plus actions, Art. 185s and JPIs and national contribution to ERA-NET Plus calls provided by Member States.*
Source: DG RTD (Jekova and Niehoff, 2013)

The average budget dedicated per joint call follows an erratic trend over the 2004-2013 period. However, Figure 8 shows an significant increase, between 2012 and 2013, rising from €7.5m to €11.4m).

Figure 8 Average public budget per call (€million)



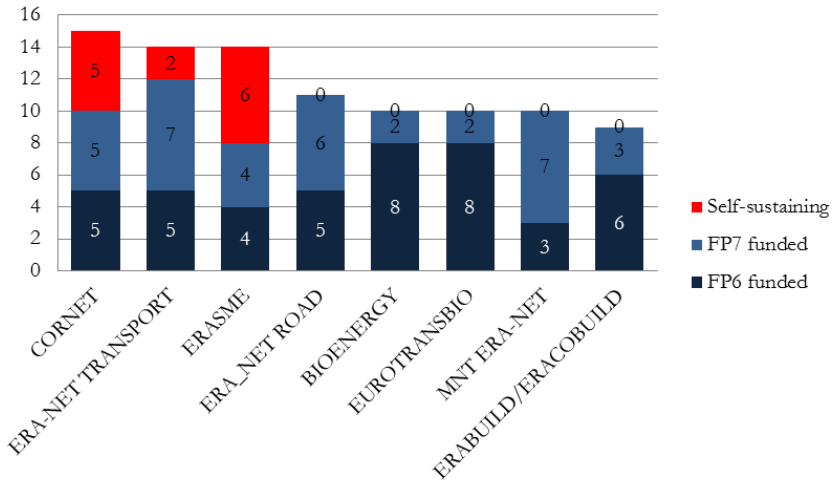
Source: DG RTD (Jekova and Niehoff, 2013)

In this context, opening up does not necessarily refer to the funding of researchers in other countries. It means that the procedures and structures of a programme have to align and become more open to transnational collaboration. FP7 ERA-NETs had to launch at least one joint call.

However, this does not mean that all participants were involved in joint calls. 18% of respondents had not responded participated in a joint call. The largest share of participants (32%) is represented by those who participated in funding only ONE joint call. 27% of the respondents who declared to have funded two joint calls and 13% three joint calls (see Figure 9).

Box 1 Overview of 8 ERA-NETs joint calls activities

- CORNET has been continuing its activities as a self-sustaining network since the beginning of 2011 after two former ERA-NET phases (CORNET I and II). The network has launched a total of 15 calls, corresponding to five calls in each phase.
- ERA-NET TRANSPORT has had three phases: ENT I, ENT II and currently ENT III. ENT I launched five calls, ENT II launched seven calls and ENT III launched two calls in 2013; therefore, they have launched 14 calls in general (also planning two in 2014 and two more in 2015).
- ERASME is a current self-sustaining network. It launched as a FP6 funded ERA-NET and launched four calls. The network continued its activities with FP7 funding and launched four more calls during this period. In the self-sustaining period, ERASME launched six more calls.
- ERA-NET ROAD has also had two phases. The network launched 11 calls; five during the FP6 period and six in FP7 period.
- Bioenergy has launched 10 calls: eight as FP6 funded ERA-NET and two as FP7 funded ERA-NET Plus.
- Eurotransbio has launched 10 calls: three as FP6 ERA-NET and seven FP7 ERA-NET
- MNT ERA-NET has launched 10 calls: three as FP6 ERA-NET and seven FP7 ERA-NET.
- ERABUILD / ERACOBUILD has launched nine calls: six as FP6 ERA-NET and three FP7 ERA-NET.



Source: Based on Jekova and Niehoff (2013)

The highest numbers of joint calls since the beginning of FP6 have been launched by different types of networks, namely, CORNET (15 joint calls), ERA-NET TRANSPORT (14 joint calls), ERASME (14 joint calls), ERA-NET ROAD (11 joint calls), BIOENERGY (10 joint calls), EUROTRANSBIO (10 joint calls), MNT ERA-NET (10 joint calls) and ERABUILD/ERACOBUILD (9 joint calls). There are certain similarities between these activities that can be underlined:

- In terms of the overall number of joint calls launched by active and/or former ERA-NETs, three of top five networks are self-sustaining networks. They were funded by FP6/7 and currently they continue their activities as self-funded networks.
- All the top eight networks have given attention to industry (SMEs and/or large private corporations) and they are all open to pre-competitive research.

- The research fields that have become prominent in terms of joint calls launched by a network are transport, biotechnology and nanotechnology. These areas are highly competitive and technology-based research fields. Additionally, they are again notable due to their close (or required) cooperation with industry.
- Focus on innovation and industry at the same time can be seen as an advantage to launch substantial joint calls and to maintain long-term research.

According to the data based on the survey undertaken by DG RTD (Niehoff and Jekova, 2013), the largest part of total public funding realised per theme is observed for Industrial Technologies and SMEs, with €828 million. It is followed by Health (around €500 million) then KBBE and Environment (around €370 million).

Figure 9 How many joint calls has your organisation participated in current ERA-NET?

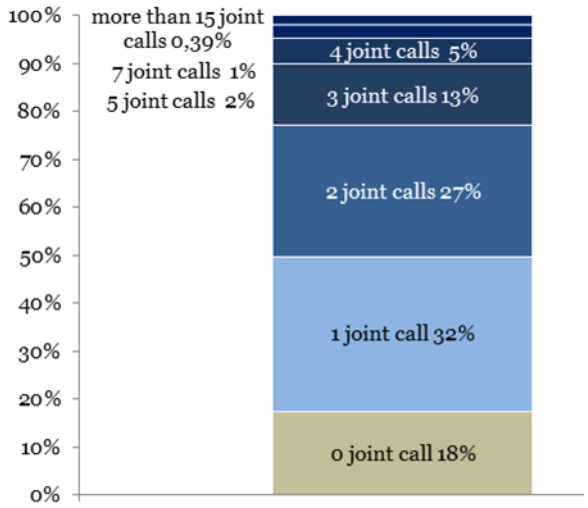
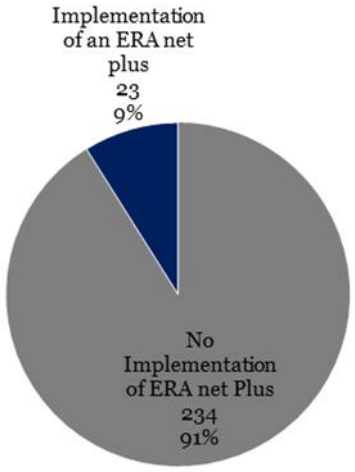


Figure 10 Has your organisation participated in this/these ERA-NET PLUS?

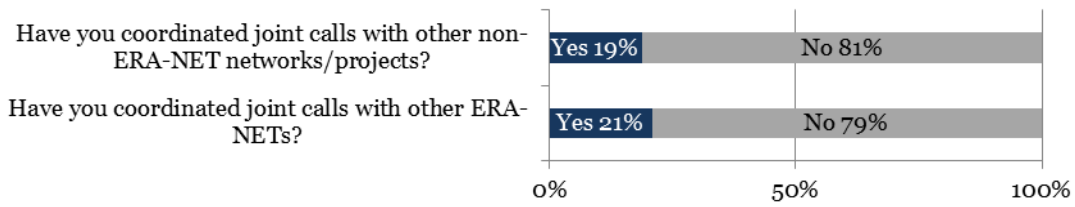


Source: ERA-NET participant survey - October 2013-JRC-IPTS

From the coordinators' point of view, and despite the increase of the amount of funding, joint calls can appear as a burden for ERA-NETs participants: a task they are obliged to undertake. Some coordinators declare that joint calls are complicated to implement and do not contribute to the coordination of policies.

According to the survey, very few ERA-NET coordinators declared that they have coordinated joint calls outside of their own ERA-NET, 21% with another ERA-NET and 19% with another non-ERA-NET project.

Figure 11 Have you coordinated joint calls with other ERA-NETs or project?



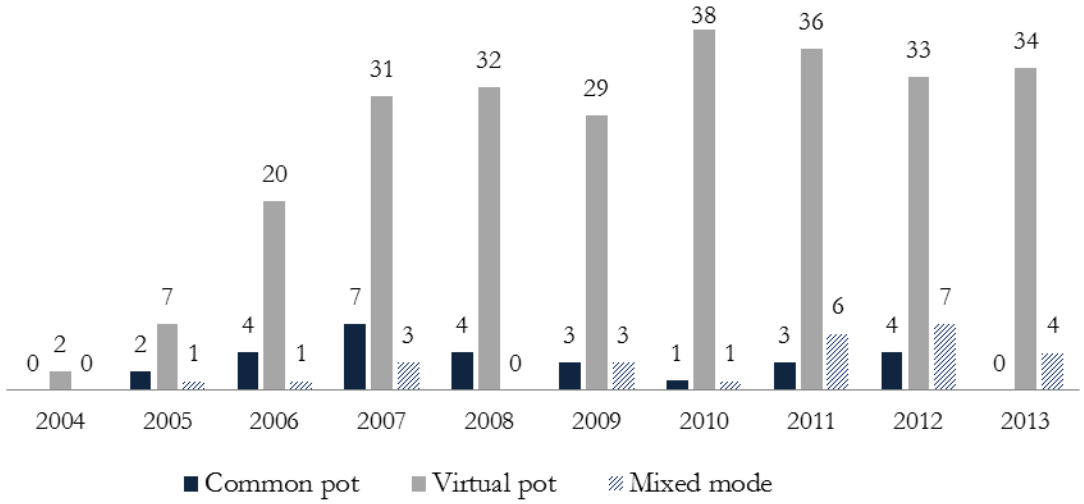
Source: ERA-NET participant survey - October 2013-JRC-IPTS

In general, one-third of ERA-NETs have taken a co-coordinator role in collaboration with other ERA-NETs and/or other networks. In other words, organisations with experience in coordinating joint calls incline to take responsibility in European collaborative research.

2.2.2. The funding mode used in the joint calls

Finally, it can be noted that the virtual common pot has been the most popular funding mode even though the Commission has promoted common (and mixed) modes[18] to overcome common barriers (ERA-NET Review, 2006). As seen in Figure 12 below, the virtual common pot has always been the preferred funding mode while the use of a real common pot has disappeared over time: there were no common pot calls in 2013. It is clear that there is no appetite for national organisations to fund research performed in other countries.

Figure 12 Joint calls funding mode from 2004 to 2013



Source: NETWATCH platform

Legal barriers remain important partly due to the different types of funders. Ministries participating in ERA-NETs at the same time as programme owners and programme managers have less flexibility than research agencies. These long-lasting differences in the organisation of national research systems of member states are a prime factor in the absence of the "real common pot" funding mode in 2013 (see graph above). Moreover, the collaborative nature of the projects funded by ERA-NET joint calls does not suit certain research activities. Allowing certain types of ERA-NET to fund single partner projects could be relevant.

2.2.3. Typology of joint calls beneficiaries

Q7: Are ERA-NET joint calls used as a first step to other transnational research activities?

[18] Real Common Pot: Participants pool their national contributions to a common and centrally administrated call budget and this provides funding for successful proposals irrespective of the applicant's nationality. Virtual common pot: Participants pay for their own participants without any cross border funding. Mixed mode: parts of the call budget are reserved for a 'common pot', which allows compensating mismatch between national funding contributions and requested budgets for successful proposals when following ranking list.

Knowledge of the beneficiaries of ERA-NETs joint calls remains imprecise and fragmented due to the absence of detailed and up to date information on all the projects funded by ERA-NET joint calls. A sample of four ERA-NETs selected according to their activity and the availability of the information regarding projects and participants have been selected to examine further the joint call project profile. These four ERA-nets are:

- BONUS on the marine environment in Baltic region,
- EURONANOMED (ENM) focussing on the application of nanotechnology to medicine and healthcare;
- WOODWISDOM (WW2) on wood material science and engineering; and
- CRUE on flood research.

The comparison with FP7 projects and beneficiaries is performed according to the corresponding research areas in the FP7. The analysis is performed at both the project level and at the participant level. At project level, the objective of the analysis is:

- To define a typology of joint call participants and compare it with the FP7 typology in the same research field (industry and public research organisations).
- To compare funding received in joint calls and contributions received from FP7 to assess the share to public funding in joint calls compared to an FP7 area for a country. Assess the policy mix.
- To compare national participation between joint calls and the FP7 and assess whether the FP7 leaders are the same as those involved in the ERA-NET.

At participant level, the objective is to distinguish the 'usual suspects' (participating in many other types of programmes such as FP7) from the newcomers participating in only joint calls (with typology). A presence rate of joint call beneficiaries in FP7 projects feeds the argument that ERA-NET joint calls are a first step in engaging in transnational research for a limited number of research performers.

The table below provide an immediate comparison between projects funded by joint calls and those funded by the FP7 calls for proposals. Comparison between the two sources of funding gives the following information:

- The research areas are better covered in terms of total public contribution in the FP7 than in the ERA-NETs (for instance research activities on flooding received €3.5m through the ERA-NET CRUE and €13.7m through the FP7).
- Projects funded by joint calls are smaller than projects funded under FP7 in terms of the numbers of partners and public contribution. However, important differences are evident between ERA-NET. The average joint calls funding for EURONANOMED or BONUS projects is five times higher than the average of funding of projects funded by CRUE. It shows that there is no single type of frame for projects funded by ERA-NET joint calls.
- The comparison of the typology of beneficiaries shows that a majority of participants come from academic organisations (university or public research centres) with a weak participation of private organisations. A notable exception is the ERA-NET WOODWISDOM, which explicitly targets private companies, particularly SMEs.

Table 1 Comparison of project profiles between FP7 and joint calls

		CRUE/FP7 related research fields[19]	ENM/FP7 related research fields[20]	WW2/FP7 related research fields[21]	BONUS/FP7 related research fields[22]
Joint calls project profile	No. of projects funded by joint calls	13	23	39	16
	No. of funded participations	57	125	354	133
	Total Joint Call funding	3 559 162	26 615 349	35 469 066	22 615 256
	Avg JC funding per projects	**273 782**	**1 157 189**	**909 463**	**1 413 454**
	Avg JC funding per participants	**62 441**	**212 923**	**100 195**	**170 040**
	Avg number of partners per project	**4**	**5**	**9**	**8**
	% of HE participating in joint calls	65%	44%	29%	57%
	% of RES participating in joint calls	12%	35%	25%	41%
	% of IND participating in joint calls	16%	21%	42%	1%
	% of OTH participating in joint calls	7%	0%	3%	2%
FP7 projects profile	No. of FP7 related projects	4	36	49	85
	N of FP7 funded participations	61	182	577	649
	Total EC funding	13 757 184	89 284 034	144 272 267	160 492 768
	Avg EC funding per projects	**3 439 296**	**2 480 112**	**2 944 332**	**1 888 150**
	Avg EC funding per participants	**225 528**	**490 572**	**250 039**	**247 292**
	Avg number of partners	**15**	**14**	**16**	**21**
	% of HE participating in FP7	37%	51%	38%	33%
	% of RES participating in FP7	40%	18%	38%	40%
	% of IND participating in FP7	23%	30%	25%	28%
	% of OTH participating in FP7	17%	1%	10%	11%

Source : JRC-IPTS

The analysis shows that a majority of those beneficiaries (60%) are also involved in FP7 project in the same research fields but with important disparities according to the type of organisations (see Figure 13). Almost all higher education organisations involved in joint calls are also involved in comparable FP7 projects. This is also the case to a lesser extent for the research organisation (mostly public). However only one third of the private companies involved in joint calls have been detected as FP7 participants.

The expected role of joint calls as a first step towards accessing larger transnational cooperation cannot be confirmed for all types of participants. Higher education organisations and most research organisations are clearly familiar with transnational research whatever the funding sources.

[19] FP7 related research field for CRUE: flood research
[20] FP7 related research field for ENM: nanotechnology applied to medicine and healthcare
[21] FP7 related research field for WW2: wood material science and engineering
[22] FP7 related research field for BONUS: marine environment

Figure 13 Share of Joint calls participants participating in the FP7 (from the analysis of 4 ERA-NET joint calls database)

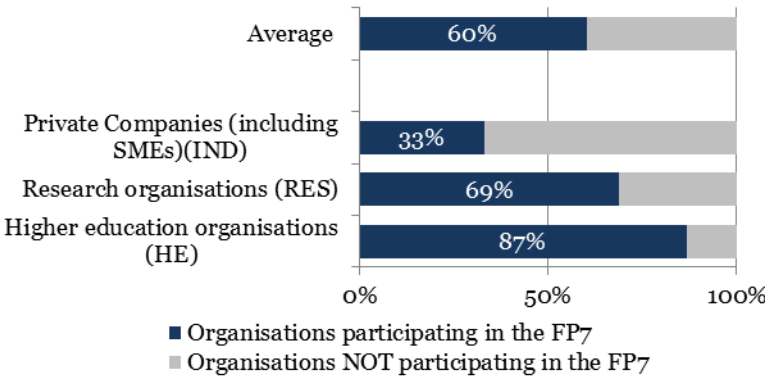
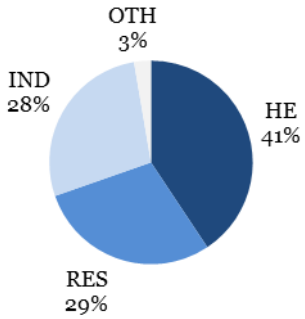


Figure 14 Typology of Joint calls beneficiaries (in number of participations)



Source: ERA-NET joint calls database analysis-JRC-IPTS

The analysis of the complementarity between ERA-NET joint calls and FP7 from the research organisations' perspective shows interesting findings. Starting from organisations participating in joint calls, the objective is to check whether research organisations are also involved in FP7 projects in the same research fields according to their typology.

The analysis contributes partially to identify that an important joint call objective is, for participating organisations, to take a first step towards larger transnational projects (such as FP7). The main findings are the following:

- Among the 4 ERA-NETs analysed, major differences appear in the share of organisations involved in joint calls and FP7 projects. The share is 47% for the ERA-NET Woodwisdom and 83% for CRUE.
- The difference between ERA-NETs comes from the joint call participants' typology. Universities and public research organisations are more often involved in the two types of projects. This is less the case for private organisations with some exception such as the ERA-NET CRUE where 78% of private organisations are also involved in the FP7 on flood research.

The objective of using ERA-NET joint calls as a first step towards larger transnational research projects is partially relevant. 60%[23] of joint call beneficiaries are already involved in the FP7 projects in the same research fields. This average, however, hides some strong differences between academic and private organisations, more than 80% for the first one and 33% for the second. As the projects funded by the FP7 and ERA-NETs target different objectives, it is likely that complementarity between the two sources of funding is sought by public research organisations in their participation strategies[24].

Nevertheless, ERA-NET joint calls may be useful for private organisations to become more familiar with transnational and collaborative projects. These projects involve smaller consortia, less commitment, are shorter and entail less administrative burden.

[23] Average calculation from Woodwisdom, Crue, Euronanomed and Bonus

[24] Further investigations about participation strategies of beneficiaries would be necessary to confirm this hypothesis.

Table 2 Comparison of project profiles between FP7 and joint calls

		CRUE/FP7 related research fields	ENM/FP7 related research fields	WW2/FP7 related research fields	BONUS/FP7 related research fields
% in FP7 AND joint calls	**% of organisation participation in joint calls AND FP7**	**83%**	**70%**	**47%**	**76%**
	% HE participating in joint calls and FP7	86%	79%	91%	91%
	% RES participating in joint calls and FP7	83%	74%	67%	65%
	% IND participating in joint calls and FP7	78%	50%	27%	0%

Source: JRC-IPTS

2.2.4. The involvement of the private sector in transnational projects funded by ERA-NET joint calls

Q8: Do ERA-NETs joint calls involve private sector?

The majority of national programmes (70%) supporting ERA-NETs are open to the private sector even if it does not signify that these programmes are targeting private organisations. Only 30% of those national and regional programmes are dedicated to academic research organisations and prohibited to private bodies.

Participation of industry varies according to the ERA-NET and the thematic areas covered. From the joint calls analysis performed from the four sample ERA-NETs, the average share of industry is 28% but may vary in important proportions according to the objectives and targets of ERA-NETs.

Most joint calls fund basic research and therefore usually target academic-oriented research organisations (universities or public research centres). For this reason, private companies (SMEs included) do not often participate in joint calls. This also explains, to a large extent, the typology of participants. Analysis performed on beneficiaries of joint calls launched by four ERA-NETs show that higher education and academic sectors represent 70% of the beneficiaries. Nevertheless, there can be exceptions with some ERA-NETs such as joint calls launched by the ERA-NET Woodwisdom funding a majority of private organisations. For instance, for the ERA-NET Woodwisdom 42% of beneficiaries of the joint calls are in industry, while for BONUS, the share is only 1%.

Some exceptions may occur for some funding organisations involved, for instance, in the following ERA-NETs: AirTN, CROSSTEXNET, ECO-INNOVERA, EraSME2, ETB-PRO, LEAD-ERA, MANUNET II, MARTEC II, MNT-ERA.NET II. Funding Organisations declare that private companies represent 81% to 100% for the joint calls beneficiaries.

Table 3, however, shows that 72% of ERA-NETs had some private sector participation (up to 20%) in consortia. This finding confirms the fact that business participation is seen as important; but that attempts to raise interest in participation do not really appear to have paid off yet. Often call texts oblige consortia to include both academia and industry. Alternative ways to involve SMEs include cooperation with innovation networks that launch joint innovation calls for SMEs, or the early inclusion of SMEs in the translation of research into innovative products.

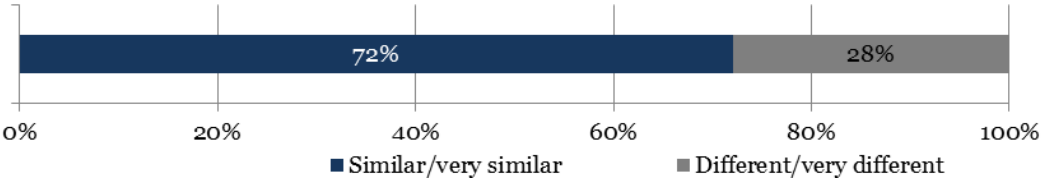
Table 3 What is the degree of participation of private sector in transnational projects funded by ERA net Joint calls*?

% of ERA-NET	Private sector (including SME) participation in consortia?
0-20%	72%
21-40%	9%
41-60%	5%
61-80%	5%
81-100%	9%

** How to read the figures: 72% of ERA-NET involve 0-20% of organisations from private sector in projects funded by joint calls*

Of the funding organisations, 72% declare there is no difference in terms of typology of actors between the national programmes they are in charge of and joint calls they are funding. In these cases, joint calls would be an international "extension" of the national programme. For 28% of cases, joint call and national programme have a different typology of beneficiaries. These differences occur when the type of research funded is different from calls for projects launched by national programmes.

Figure 15 Is the degree of participation of private organisations similar or different from pure national projects?



Source: ERA-NET participant survey - October 2013-JRC-IPTS

2.2.5. Impact on national (regional) programmes

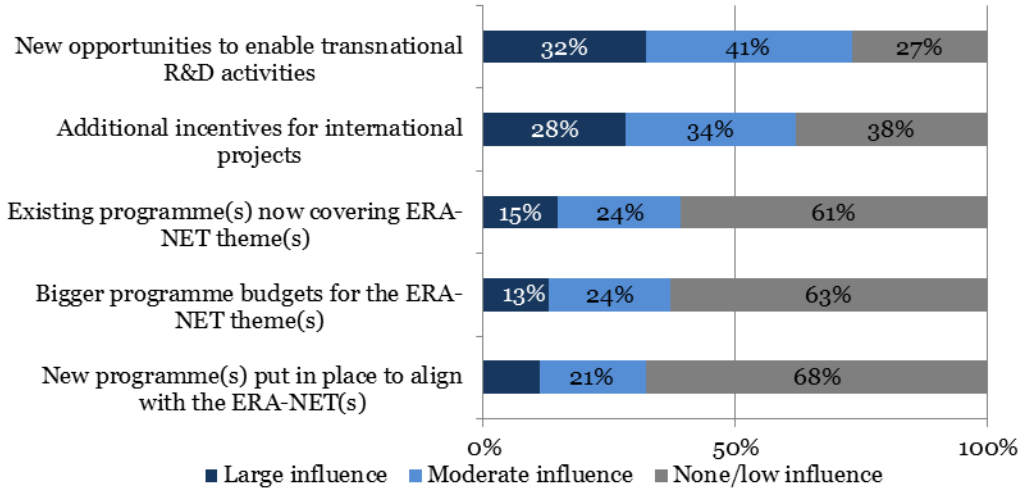
Q9: Do ERA-NETs participations influence national or regional programme(s)?

Concrete changes in terms of behaviour are not always evident following participation in an ERA-NET. Participation in an ERA-NET can trigger the adoption of new routines or ways of doing things, but more frequently, it contributes little by little to the diffusion of new methods and processes, if not already adopted previously by the organisation.

The primary contribution of ERA NETs is the increase in calls for collaborative projects at national level and a better use of monitoring and evaluation projects with the use of international evaluators. It appears in the case of 62% of organisation participations that the participation in an ERA-NET constitutes an incentive for international projects. Participation influences to a lesser extent existing national programmes in terms of thematic coverage and/or budget. On the contrary,

new project/programme evaluation criteria and new eligibility criteria allowing funding of non-resident researchers are not influenced by the ERA-NET participation.

Figure 16 To what extent has your participation in this FP7 ERA-NET influenced your national or regional programme(s)?



Source: ERA-NET participant survey - October 2013-JRC-IPTS

A vast majority of organisations consider there is complementarity and synergies between their national programmes and the ERA-NET in which they are involved. Complementarities and synergies can be at geographical level (regional/national versus international scope) and at research level (upstream versus downstream research).

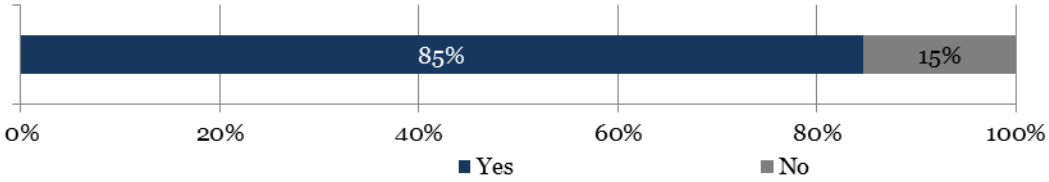
Even if participation of regional authorities was clearly encouraged in the FP7, this participation remained limited in ERA-NETs. No clear increase of their involvement has been observed compared to FP6. The growing importance of synergies between structural funds and Horizon 2020 may encourage regions to better participate in the future. For instance, Alsace region is partner of five ERA-NET in the FP7. Several companies and laboratories based in Alsace received support from ERDF and Regional authorities in the collaborative projects selected from a joint calls launched by the ERA-NET LEAD ERA[25]. This example illustrates the role the ERA-NET scheme can have in the synergies of different public funding. ERA-NET action can act as a focal point between FP7 (funding coordination of the ERA-NET) and Regional and ERDF funding contributing to collaborative research projects.

Table 4 FP7 ERA-NET actions coordinated by Regional authorities

MANUNET II	Basque Innovation Agency	ES
COMPERA	Agency for Innovation by Science and Technology (Flanders)	BE
CROSSTEXNET	Regional Council of Nord-Pas de Calais	FR
NET-BIOME	Regional Council of Reunion	FR
URBAN-NET	Scotland and Northern Ireland Forum For Environmental Research	UK
LEAD ERA	Public Service of Wallonia	BE
ERNEST	Tuscany Region	IT

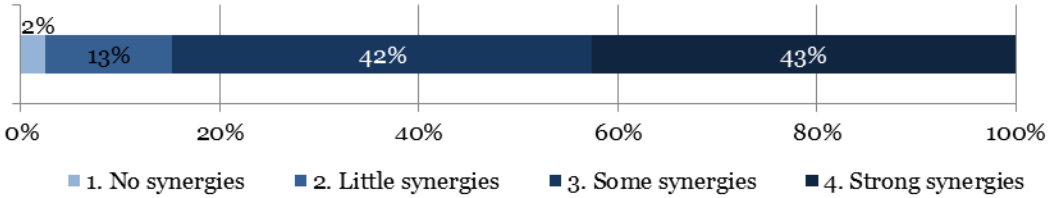
[25] The LEAD ERA action is aimed at fostering the coordination of a series of trans-regional programmes dedicated to research and innovation within the highly innovative and technology based themes of the EU Lead market initiative

Figure 17 Is there a complementarity between your national programme and the research field covered by the ERA-NET?



Source: ERA-NET participant survey - October 2013-JRC-IPTS

Figure 18 Is there synergies between national research priorities and the research domain covered by the ERA-NET?



Source: ERA-NET participant survey - October 2013-JRC-IPTS

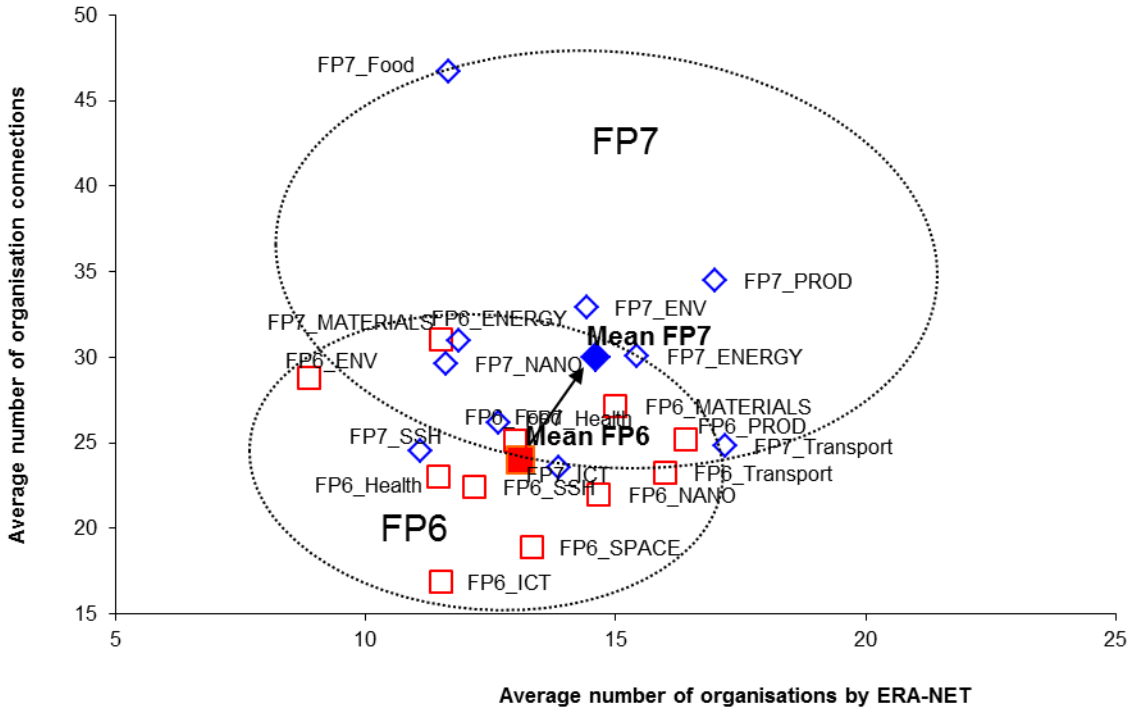
2.2.6. Assessment of the impact on participants collaboration using Social network analysis

Q10: Do ERA-NETs have an impact on organisations collaboration?

The analysis follows work underpinned by JRC-IPTS analysing networks in the European Framework Programmes (1984-2006) using social network analysis (Heller-Shuh et al, 2011). Network analysis can be used to demonstrate links between entities, and also to quantify and to qualify the position of entities relative to each other. These entities are named “nodes”, and they are linked by lines called "ties". Concretely, in the case of ERA-NET analysis, a node can represent a country, an organisation, and an S&T field.

Network analysis can be useful to answer evaluation questions assessing the change between periods, the stakeholder's behaviour or revealing key players. ERA-NETs have been distributed among 12 research fields in order to deliver and compare sound network analyses for each of them. It should be noted that an ERA-NET with a large thematic scope could be assigned to several research fields. The objective here is to describe network profiles for FP6 and FP7 and to assess the difference between the two periods and the consequent impact.

Figure 19 Evolution of ERA net profiles according research fields

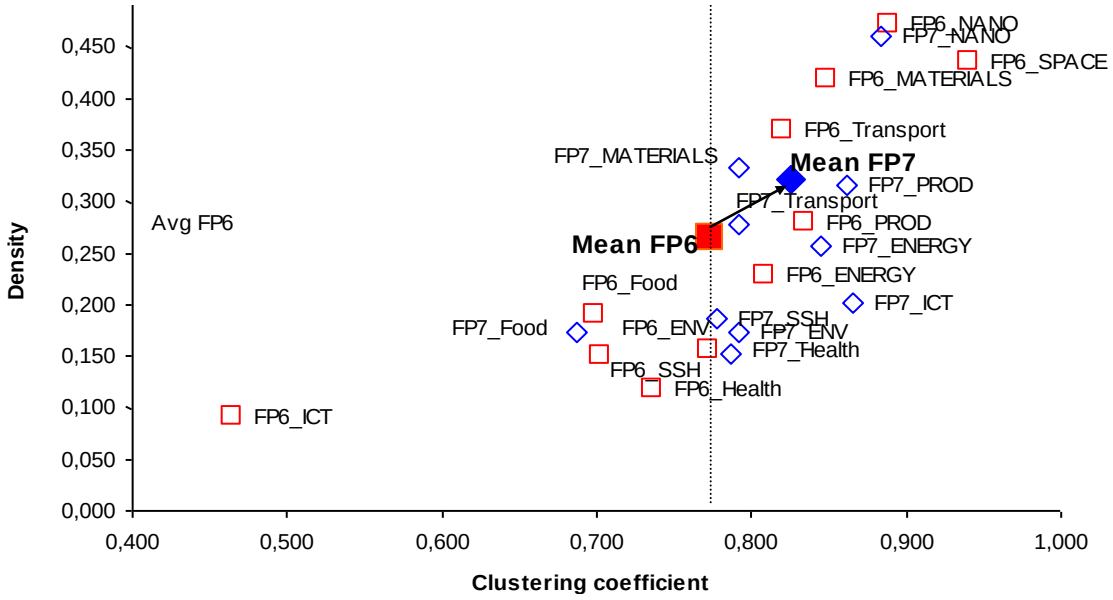


The overall increase in structural indicators reveals changes in networks funded by the ERA-NET scheme. More organisations are participating in FP7 and they appear more collaborative because they are more connected to others. These observations regarding structural changes in networks between FP6 and FP7 indicate an increase in coordination of European research over the period with some variation between the research fields (see Annex for a detailed analysis by research fields). According to the research fields, those appearing less fragmented than in the FP6 are health, environment, industrial production processes and the social sciences and humanities.

The field of food research, despite a significant increase in the average number of connections by organisations, shows a slight decrease in the other indicators due to large FP7 ERA-NETs with participants that are less well connected with the rest of the network. This situation can be explained as the research field encompasses more transversal ERA-NETs not specifically dedicated to the field but which contains a component related to health (RURAGRI, ICT-AGRI, EMIDA, EUROTRANSBIO, ARIMnet). Indicators concerning space and security research fields are difficult to interpret due to the low number of ERA-NETs.

The change between the FP6 and FP7 in terms of network structure does not reveal strong disparities between research fields (see Figure 20) but mean values have drastically increased. The following graph shows a correlation between the number of organisations participating in ERA-NETs and the number of connections by organisation, which has increased at a faster rate.

Figure 20 Structural evolution of FP6 and FP7 research fields



Density and the clustering coefficients are correlated, meaning that the more a network has a high density then usual the higher its cluster coefficient is (see Figure 21).

For a vast majority of fields the trend is towards a higher density combined with a higher cluster coefficient between FP6 and FP7, except the field of Transport and Nanosciences to a lesser extent. This general trend shows an increase in collaboration between organisations participating in ERA-NETs between the FP6 and the FP7 with some disparities between research fields.

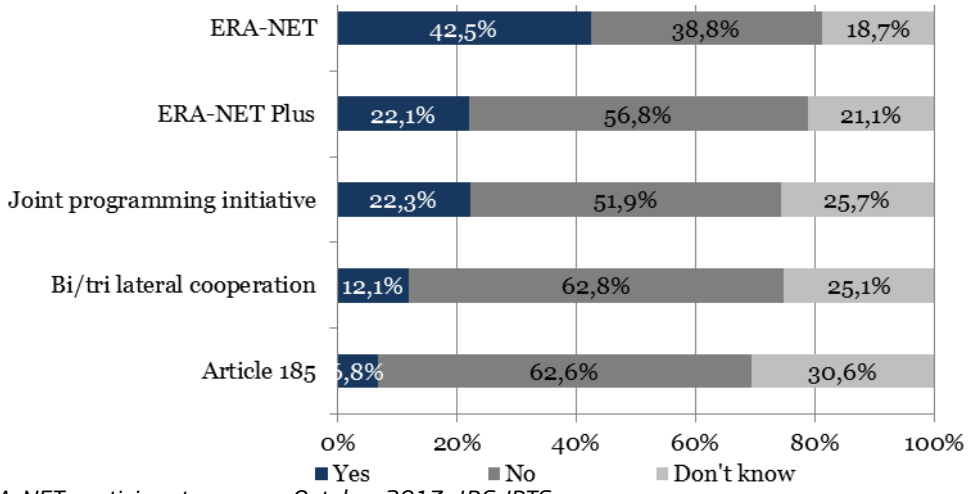
2.2.7. Triggering transnational cooperation outside of the ERA-NET

Q11: Do ERA-NETs trigger transnational activities outside the scheme?

Participation in one ERA-NET led organisations to a further ERA-NET participation in 42.5% of the cases. Another EC supported ERA-NET seems the most logical future option for participating organisations. This result could be compared with the weak share of organisations envisaging bi- or trilateral cooperation without any support from the EC. For most of the participants, ERA-NETs have created a "comfortable" environment within organisations, wherein they better appreciate working with each other to exchange knowledge, processes etc.

ERA-NET Plus actions and Joint Programming Initiatives are envisaged for 22% of organisation participations. It has to be noted that the significant share of replies indicates organisations do not know about the future of their participation in an ERA-NET.

Figure 21 Has participation led to further transnational cooperation of your organisation outside of the ERA-NET?



Source: ERA-NET participant survey - October 2013-JRC-IPTS

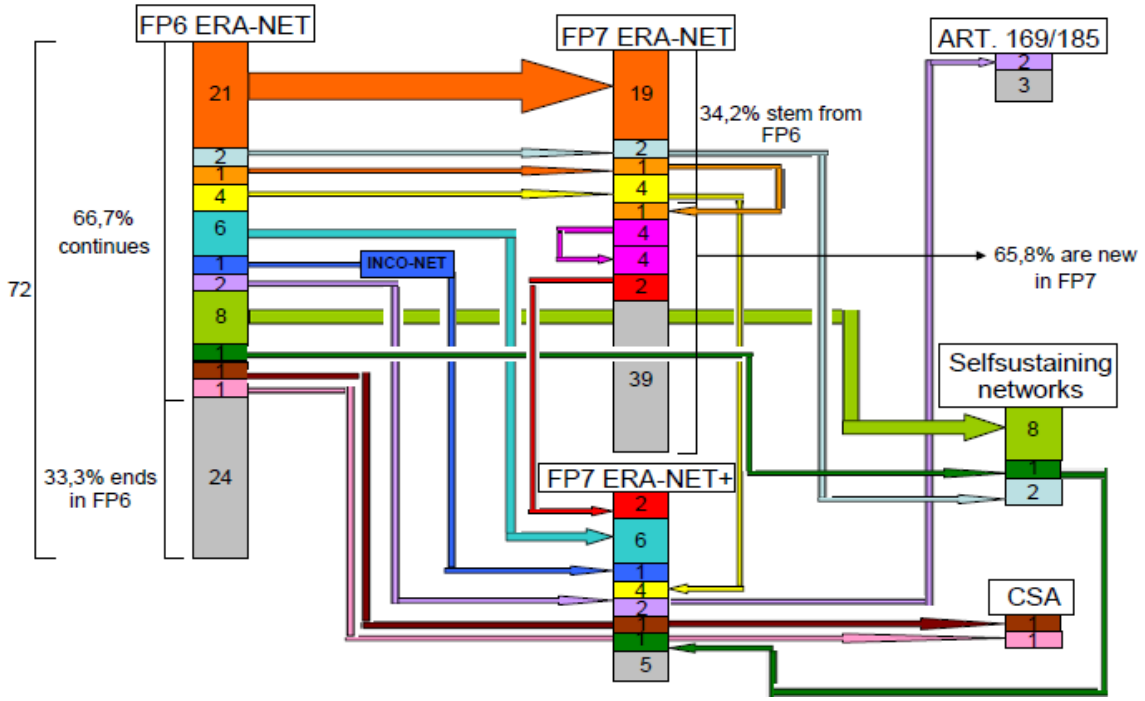
In the context of assessing the impacts of ERA-NET actions, it is interesting to look at whether, and how, ERA-NET actions continue once the EC funding ends. The graph below shows that two thirds of all actions under FP6 experienced some form of continuation. The majority of those continuations are funded through FP7 (ERA-NET and ERA-NET Plus). In total thirteen different ways of continuation are being used. Among FP7 ERA-NET actions (62 in total), one third of them form some sort of continuation of FP6 ERA-NET, and two third are 'new' initiatives. Among the self-sustaining networks (11), 8 of them stem from an FP6 ERA-NET directly.

Over the 5 Article 185 initiatives, 2 of them (BONUS and EMRP) come from an ERA-NET or were launched in their initial phase by an ERA NET plus.

JPIs have already established concrete relationships (collaboration, networking, joint activities etc.) with other European initiatives. The most common initiatives are ERA-NETs, with 21 different ERA-NETs, cited by all 10 JPI coordinators[26].

[26] See p 73 NETWATCH Mapping and Monitoring: Fifth Exercise (available on http://netwatch.jrc.ec.europa.eu/strategic-analysis/mapping-and-monitoring)

Figure 22 Trajectories of continuation of European research programming networks under FP6 and FP7 (2002-2013)



Source: Netwatch Policy Brief n°3- 2014-JRC-IPTS

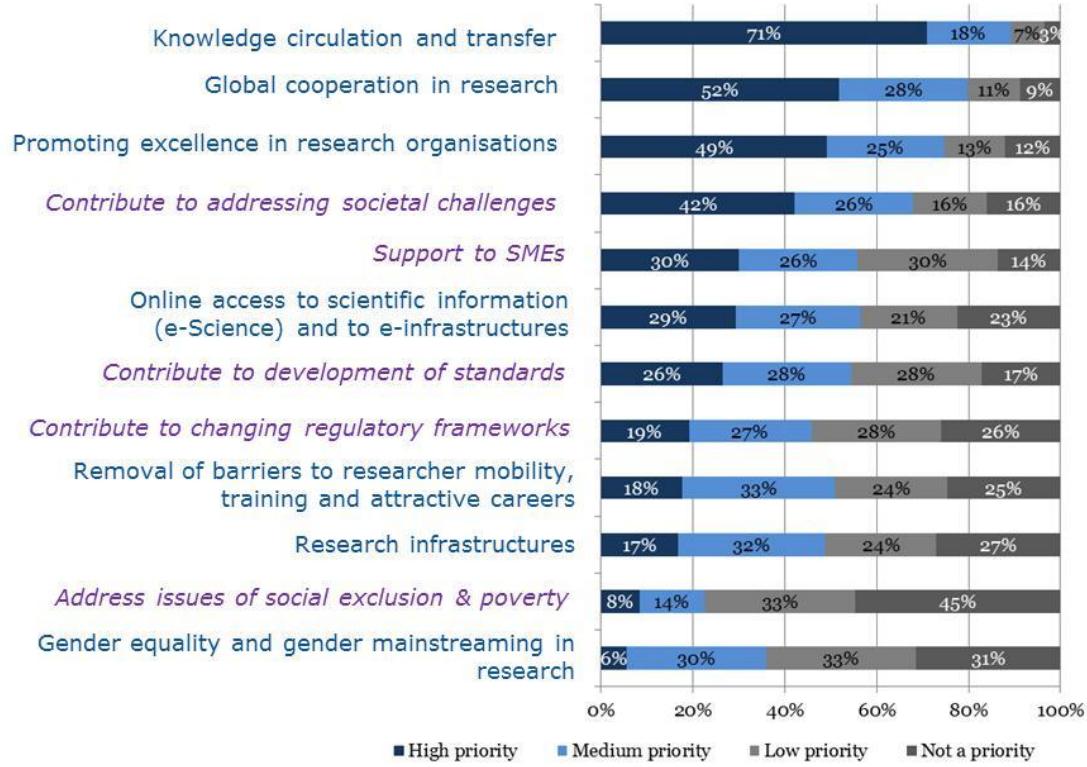
This diversity of ways to continue transnational collaboration in research programming offers a wider context for analysing potential impacts of those collaborations.

2.2.8. Impacts of ERA-NETs on the national and European research landscape beyond the transnational coordination and competition in research

Q12: What is the impact of ERA-NETs beyond the first objectives of the scheme?

The Figure below shows the importance of activities of ERA-NETs that go beyond the transnational coordination and competition in research. Two types of activities can be distinguished: research-related activities (which actually refer to elements of the ERA priorities and dimensions (in blue text)), and non-research related activities (in purple italics). It is obvious from the graph that many of the ERA-NETs give importance to a variety of activities that go beyond mere research coordination, albeit with wide differences between activities.

Figure 23 Does the ERA-NET in which you participate include activities that relate to the following EU 2020 policies?



Source: ERA-NET participant survey - October 2013-JRC-IPTS

The Research related activities beyond programme cooperation give a high priority to knowledge circulation, global cooperation and promoting excellence and a low importance to gender issues.

These findings align quite well with qualitative analysis using cases studies on the same topics for longstanding programme collaborations (see NETWATCH Policy Brief 3[27]), where many different types of activities were found in these areas. Activities from the cases on knowledge circulation and transfer include e.g. organising joint calls focusing on the whole innovation chain, involving business in call topic identification, peer review and evaluation, use of IPR templates. Examples of global cooperation include participation of non-EU partners in joint calls, harmonisation of legal procedures with Third Countries, joint conferences and events. On promoting excellence, practices include the use of evaluation criteria related to excellence (e.g. quality of the proposal, of the consortium, of the management,…) and the use of international peer review (fund nationally but compete internationally). People issues (mobility, training, and career) seem to get a somewhat lower importance in Figure 16, although the cases reveal a wide set of different activities in this area: using mobility as an impact indicator, measures for young researchers in call texts, summer schools, platforms and events to support young researchers, etc.

Activities related to the digital ERA (online access to scientific information (e-Science) and to e-infrastructures) are a bit less frequent, and, as can be found from the cases, relate mainly to electronic research and project management issues (see Box 2) and less to access to scientific

[27] Haegeman, K. et al (2013) Added value of transnational research programming: lessons from longstanding programme collaborations in Europe. Netwatch Policy Brief Nr 3, European Commission. Available at: http://netwatch.jrc.ec.europa.eu/strategic-analysis/policy-briefs

results. For obtaining data on access to e-infrastructures ERA-NETs would need to be analysed in areas where e-infrastructures are commonly used. Activities on access to research infrastructures can include inventories of infrastructures and collaboration with the relevant ETPs on shared use,. The low priority on gender equality and gender mainstreaming in research is also confirmed by the cases, where not one single example of such an activity could be identified.

Box 2 Examples of network activities related to the digital ERA

- Online information for researchers and policy-makers
- Online proposal submission system
- Expression of interest tool and research landscape tool to identify project opportunities, find partners, link to other projects and build consortia
- Meta-databases and information exchange systems

The Non-Research related activities beyond programme cooperation give a high priority to addressing societal challenges. The survey shows that many attempts to support SMEs but with varying success and inclusion issues appear to be not important at all, unlike its high priority in Europe2020.

The contribution of research to societal challenges seems to be high on the agenda of ERA-NETs. Examples from the cases[27] suggest different ways to do so: inclusion of societal challenges in call topics; combination of societal challenges in call texts with competitive customer solutions; and research results delivering input to policy agreements on societal challenges, etc.

SME support also seems to get relatively high attention with 56% of respondents assigning it a medium to high priority (Figure 16). Deeper analysis however shows that many attempts are made but not always with the expected results. The survey reveals that 70% of ERA-NETs has funding programmes open for applications from the private sector.

ERA-NET activities in the area of standardisation and regulation shaping seem to get lower importance, although cases reveal a wide variety of different activities. Box 2 shows examples of how ERA-NETs contribute to adapting regulatory frameworks. For standardisation, activities can relate to incremental changes to existing ones or help to shape completely new ones. Examples of activities include dissemination of research results to standardisation bodies, alignment of the research with existing and expected future standards and alignment between academic and industrial laboratory standards.

Box 3 Examples of network activities related to the changing regulatory frameworks

- Training for funded researchers on regulatory, ethical and safety issues
- Disseminate results of research projects to regulation developers
- Involving the external advisory board in ethical, regulatory and safety issues
- Organise dialogue between academics, industry, regulatory agencies and policy-makers
- Address differences in regulatory frameworks when they apply simultaneously to one product innovation (e.g. innovations falling under two application areas, differences in frameworks between world regions, differences between frameworks of different professions etc.)
- Identify and address non-technological barriers

An important result relates to the low priority that goes to social exclusion and poverty in Figure 16, and which is confirmed by the case studies. Inclusion is almost not considered important. This is

particularly interesting, because inclusion is one out of three main objectives in the Europe 2020 Agenda on Smart, Sustainable and Inclusive Growth.

3. CONCLUSIONS

3.1. The ERA-NET Scheme

The ERA-NET scheme and the ERA

Launched in 2002 at the beginning of the FP6, the ERA-NET scheme kept its initial objective "to step up the cooperation and coordination of research activities carried out at national and regional level". Some adaptations have been brought in the FP7 as recommended in the ERA-NET Review 2006 performed by the Expert Review Group. The scheme has switched from a bottom-up to a more top-down approach, from cross-cutting activities in the FP6 to thematic areas in the FP7 and a final step with the preparation and the launch of at least one joint call became mandatory for ERA-NET actions.

The study shows, that the ERA-NET scheme still meets a need in terms of national and regional policy coordination. The European Research Area remains incomplete and synergies between regional, national and European programmes and funding still need to be better emphasized.

Collaboration between stakeholders has improved significantly and has become more natural in spite of the persisting high diversity of national policies, funding systems and legal procedures. The study has shown that coordination between Member States has improved the collaboration habits between national or regional authorities of Member States.

Horizon 2020 will encompass the EU2020 and Innovation Union initiatives, and also accommodates the proposal in the EC Communication (2012) on ''Partnering in Research and Innovation'', which includes the amalgamation of the ERA-NET and ERA-NET Plus schemes, and the use of ERA-NETs and Article 185 by JPIs to implement their activities when appropriate. Despite these substantial changes, elements from previous programmes remain, including the realisation of ERA, and therefore also the need for coordination and the potential for schemes such as ERA-NETs to play a role. This is emphasised by the ERA Communication[34], which outlines the aim to complete the ERA by 2014, and for which transnational cooperation, including ERA-NETs, is crucial.

The coherence of the scheme among the other FP7 instruments has changed since 2002 but the introduction of new instruments aims at complementing the first objective of ERA-NETs (the coordination of existing national or regional policies). The range of instruments implemented under FP7 seems to be appropriate to address the various issues of fragmentation. Two thirds of FP6 ERA-NETs have found a way to continue their activities after the end of their contracts. Continuation can take different trajectories among the new instruments launched in the FP7 (ERA-NET Plus, JPI) or ERA-NETs that are ending can become self-sustaining networks.

Participation of regional authorities was clearly encouraged but no clear increase in their involvement has been observed compared to FP6. Participation of Regions remains relatively low

and is highly dependent of the organisation of the national research systems and the autonomy of Regions in terms of Research and innovation policies. The growing importance of synergies between structural funds and Horizon 2020 may encourage regions to participate more in the future.

Implementation and outcomes

The emphasis on the active participation of 'programme owners' as well as 'programme managers' proposed by the ERA-NET Review in 2006 and conceptualized by Barré and al (2012) with the definition of policy dimensions of R&I system function (orientation, programming and funding, research performance) is difficult to implement. Programme owners and managers are rarely involved in the same action. The participation of one or the other reveals more the organisation of national research and innovation system than a strategic choice.

Optimal transnational cooperation and competition was defined as one of the five ERA priorities in the EC ERA Communication (2012). The four steps of ERA-NET schemes cover most of the actions suggested in this communication (joint research agenda, monitoring, evaluation, inter-operability of programmes). A clear input from ERA-NETs is assessed regarding the monitoring and evaluation procedures. The ERA-NET action is an opportunity to gather a pool of international experts to evaluate joint calls projects. In many cases, the pool of experts is used to evaluate projects funded by national programmes out of the ERA-NET activities. The pool of international experts also creates links between researchers and potential opportunities to set up transnational research projects.

Different organisations clearly had different expectations with regard to their participation, as well as achieving differing degrees of ex-post satisfaction. There is clearly no one-size fits all for the impact of ERA-NETs. It depends on the individual organisation, the type of ERA-NET or the country.

While the impact of ERA-NETs on domestic research programmes seems to be quite relevant, the structural effect on domestic research management practices seems very limited. This supports the thesis of ad hoc alignment and lack of structural changes (see above).

In spite of the economic crisis, the amount of funding dedicated to joint calls has drastically increased in recent years but the use of joint calls remains rather unequal among ERA-NET actions. The compulsory aspect of launching joint calls does not satisfy all ERA-NET coordinators and represents a burden. Joint calls as proposed by the ERA-NET scheme (collaborative projects involving at least three partners from three Member States) do not suit to all types of ERA-NET. Because of the economic crisis or remaining legal barriers, the 'common pot' as the funding mode of joint calls has almost disappeared in favour of the "virtual common pot". In this time of budget constraints, it seems unrealistic to expect an inversion of this trend (as anticipated in the 2006 ERA-NET Review).

The monitoring of joint calls is only implemented at action level, not at the overall level. Each ERA-NET established its own database and indicators making it difficult to carry out the overall evaluation of the impact of projects funded by joint calls. Moreover, the analysis of the behaviour of joint calls participants in terms of participation strategy in various sources of funding is not possible.

The recent ERA communication synthesis report (Doussineau et al.,2013) pointed out that coordinated public national research currently builds on assumptions and estimations for many countries and encompasses national contributions to large European organisations and programmes (eg. ESA, EUREKA etc.). Although good efforts have been made by Eurostat to fill data gaps, it would be of great interest to better monitor the national funding dedicated to joint calls. More systematic monitoring or reporting on those actions would be required. With regard to removing barriers related to the second ERA Priority, different sets of indicators could be developed that take into account different dimensions of policy coordination in transnational research programming and the barriers related to each of them (Haegeman et al., 2013). This would allow for a systematic approach to measuring progress to removing barriers.

Interoperability of programmes is improving slowly. Actions put in place in the context of the ERA-NET to implement transnational cooperation are not, in most of the cases, kept and generalised at national programme level. The investigations made for the study show it is far more difficult to coordinate existing national research programmes than creating a brand new transnational initiative from scratch because the in-house habits remain one of the biggest challenges to overcome.

The ERA-NET scheme has created a meeting point to initiate a dialogue between funding agencies and other types of organisations in Member States. According to the survey launched in the context of the study targeting ERA-NET participants, the first priority for organisations, by far, is the knowledge circulation and transfer (mutual learning , exchange of practices etc.). To a lesser extent, the promotion of excellence in research organisations and the societal challenges issues are amongst the first priorities for participating organisations.

3.2. The Way Ahead

3.2.1. Assessment of the impact of the core objectives of the ERA-NET scheme

Learning from successful joint call ERA-NETs

The increase in the amount represented by joint calls shows that the ERA-NET instrument is gradually becoming more successful in one of its main objectives, to coordinate research programming transnationally. The ERA-NET Cofund takes this line further by focusing the instrument even more on implementing joint calls. Interesting lessons can be taken from those ERA-NETs that succeed in launching high numbers of joint calls. Case studies suggest that they seem to have found a rather easy way of managing large numbers of calls in a short period of time.

From ad hoc to structural alignment?

Many barriers still exist towards cooperation in research programming, and ERA-NETs seem to focus on practical alignment. A feedback mechanism to turn this ad hoc alignment into some form of more structural alignment can be useful as a way to lower gradually the number of barriers in place (e.g. through feedback to ERAC).

3.2.2. Assessment of the impact on the national and European research landscape

ERA-NET activities sometimes appear to go far beyond the core objectives for which the instrument was developed. This may indicate that it is difficult to see the transnational research programming priority within ERA as being independent from the other ERA priorities. Managing and programming research beyond borders also requires researchers to be mobile in order to conduct the research, it requires availability of infrastructure, and knowledge transfer for the research results to be used. Under Horizon 2020 the scheme has taken a much clearer focus on joint calls. It will be interesting to see how this wide set of related activities can be continued. One option may be to intensify the existing relations between ERA-NETs and JPIs.

Apart from intensifying relations, also mutual learning between JPIs and ERA-NETs makes a lot of sense, as many activities within the scope of JPIs are similar to the side activities of many ERA-NETs beyond their core objectives. Both are clearly different: JPIs are actually a process rather than an instrument. However, much can be learned from sometimes hidden existing practices. The foreseen integration of ERA-LEARN[28] and JPIs to Co-Work[29], two support actions initiated during the FP7, in one future learning initiative can be a highly appropriate step in this direction. It could be interesting to see whether such an initiative covers issues related to all the different ERA priorities, as well as to topics related to the wider innovation chain (such as standardisation and adaptation of regulatory frameworks).

The low to very low interest in topics such as gender equality and especially inclusion (one of the three main strategic priorities in the Europe2020 Agenda on smart, sustainable and inclusive growth) may be in line with the low importance those topics have in the core objectives of ERA-NETs. However, they may be an issue for concern because they also lack clear attention under the Public-to-Public partnerships (P2Ps) under Horizon 2020. Neither in the ERA-NET Cofund nor under the JPI scheme are these topics high on the agenda. If the aim of the P2Ps is to build critical mass in public funding they may play an important future role in completing the ERA and realising all ERA priorities, including gender balance, and in realising the objectives of Europe 2020 for smart, sustainable and inclusive growth.

Worthy attempts have been made under by ERA-NETs to better involve business and to support SMEs, however, with a divergent degree of success. This has to date also received low attention by JPIs. In those cases where P2Ps are aiming to address societal challenges and increase competitiveness in the EU, this issue may be of particular importance.

[28] See http://netwatch.jrc.ec.europa.eu/web/lp/learning-platform/toolbox

[29] See http://www.jpis2cowork.eu/

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Annex

Table 5 Comparison between Matrix-Ramboll evaluation (2008) and the JRC-IPTS impact assessment (2014)

	Matrix-Ramboll evaluation (2008)	**JRC-IPTS impact assessment (2014)**
What are the external factors helping or hindering organisations to participate in an ERA-NET?	(+)The main motivation at addressing a topic via transnational programme were sharing competencies and associated work and achieving critical mass (-) Obstacle for undertaking transnational R&D cooperation : national thematic priorities were seen as a problem, national administrative procedures and legal conditions, EC administrative procedures or legal requirement	(+) A variety of factors can encourage organisations to participate. Two primary reasons that underpin participation are linked to the general trend in Europe to increase strategic R&D programming and the emergence of new types of R&D programmes with the general increase of project based funding as opposed to block grants. (-) On the other hand, changes in R&D governance at national level occurring in the current climate of economic crisis and budget constraints appear as a major barrier for an active participation in an ERA-NET. EC administrative procedures and the lack of flexibility of the ERA-NET scheme can also affect motivation and the possibilities to participate in an ERA-NET.
What are the outputs and outcomes of the main ERA-NET activities?	Main outputs and outcomes were: ▪ Learn from one another and to exchange good practices: adoption of practices such as using international evaluation panels for reviewing proposals which had previous been done domestically. ▪ Networking with funding agencies Increased knowledge of scientific communities across Europe. ▪ Creating new opportunities for collaborative research ▪ Creating a critical mass at EU level to undertake transnational R&D activities ▪ Learning on the design of joint activities enabling transnational R&D cooperation ▪ Creating forum for discussing R&D policy and priorities in specific research fields	Activities supported under ERA-NETs follow a process in which the coordination element gradually deepens, depending on the degree of maturity of the network. ERA-NET actions should follow a four-step approach covering the following activities: ▪ Systematic exchange of information and good practices on existing programmes ▪ Definition and preparation of common strategic activities ▪ Implementation of joint activities between national or regional programmes ▪ Funding of joint transnational research
What are the impact of ERA-NET on organisation management practices and procedures?	Agreement on common principles, procedures. Evaluation process of proposals with the involvement of	The impact on participating organisation seems to be very close comparing to previous FP: the long lasting impact is

	international experts.	very limited on organisation management and procedures. ERA-NET implementation may bring about concrete permanent (or long lasting) changes (outside the ERA-NET itself) within the participating organisations. According to the survey responses, this occurs for a relatively small number of organisations. ERA-NET participation seems to have little influence on national processes. The long-lasting influences are most important for: ▪ The increase of collaborative research in national programmes with more calls for collaborative projects (behavioural change); ▪ An improvement of monitoring and evaluation of projects funded at national level because the ERA-NET allows organisations to follow and monitor the procedures of other European countries (knowledge transfer); ▪ The increased adoption of international principles of peer review.
What was the impact of the current economic crisis on ERA-NET activities?	Not applicable	The economic crisis is affecting ERA-NET at various levels: • At joint call level, the economic crisis has influenced several ERA-NET partners in the level of funding, withdrawing from joint calls. • At consortium level, the budget cut push some countries to reorganise their systems with the suppression of the public organisation involved in the ERA-NET. For instance, Belgium stopped the programme dedicated to the thematic Environment, health, the agency in charge of the topic disappeared, and the thematic is diluted among other organisations.
What is the impact of the preparation and the launching of Joint calls on participating organisations (funding mode,etc)?	National research landscape defined and adopted practices in line with their ability to engage in joint calls and funding model as authorised by national rules. In majority chosen funding mode was "virtual" common pot. Overall funding contributions to real common pots showed the associated countries channelled the highest percentage of their contribution via this funding mode (45%), compared to 24% for larger EU MS.	Comparing to FP6 when common pot was expected to be generalized progressively in the FP7, virtual common pot has been the most popular funding mode even though the Commission has promoted common (and mixed) modes to overcome common barriers .The virtual common pot has always been the most preferable funding mode while the use of a real common pot has disappeared over time. It is clear that there is no appetite for national organisations to fund research performed in other countries. Despite economic difficulties, the data, the total public budget of joint calls, which includes European Commission contributions to ERA-NETs, ERA-NET Plus actions, JPIs and national contribution to

		ERA-NET Plus calls, has generally been increasing since the beginning of FP7.
Are ERA-NET joint calls used as a first step to other transnational research activities?	No particular information	The expected role of joint calls as a first step towards accessing larger transnational cooperation cannot be confirmed for all types of participants. Higher education organisations and most research organisations are clearly familiar with transnational research whatever the funding sources.
Do ERA-NETs joint calls involve private sector?	No information	Business participation is seen as important; but that attempts to raise interest in participation do not really appear to have paid off yet. Sometimes call texts oblige consortia to include both academia and industry. Alternative ways to involve SMEs include cooperation with innovation networks that launch joint innovation calls for SMEs, or the early inclusion of SMEs in the translation of research into innovative products.
Do ERA-NETs participation influence national or regional programme(s)?	The extent to which ERA-NET has influenced national R&D policy beyond the theme of the ERA-NET was regarded by participants as being relatively high.	Participation in an ERA-NET can trigger the adoption of new routines or ways of doing things, but more frequently, it contributes little by little to the diffusion of new methods and processes, if not already adopted previously by the organisation.
Do ERA-NETs have an impact on organisations collaboration?	No particular information on the impact on the ex-post collaboration but the extent to which pre-existing relationships prior to ERA-NET participation have had an influence on the structuring effect is relatively low.	The analysis shows an increase in collaboration between organisations participating in ERA-NETs between the FP6 and the FP7 with some disparities between research fields.
Do ERA net trigger transnational activities outside the scheme?	The extent to which ERA-NETs triggered transnational cooperation activities outside of the ERA-NET was regarded as being quite low. The Additionnality of the FP6 ERA NET scheme appears to have been moderate and that no overall pattern of impact could be derived from impact analysis to Additionnality of the scheme.	Participation in an ERA-NET led organisations to another ERA-NET participation for 42.5% of the cases. Another EC supported ERA-NET seems the most logical future option for participating organisations. This result could be compared with the weak share of organisations envisaging bi- or trilateral cooperation without any support from EC. For most of the participants, ERA-NETs have created a “comfortable” environment within organisations, wherein they better appreciate working with each other to exchange knowledge, processes etc.
What is the impact of ERA-NETs beyond the first objectives of the scheme?	The extent to which ERA-NET has influenced national R&D policy beyond the theme of the ERA-NET was regarded by participants as being moderate.	Two types of activities can be distinguished: research-related activities (which actually refer to elements of the ERA priorities and dimensions (in blue text)), and non-research related activities (in purple italics). It is obvious from the graph that big part of the ERA-NETs gives importance to a variety of activities that go beyond mere research coordination, though with wide differences between activities.

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